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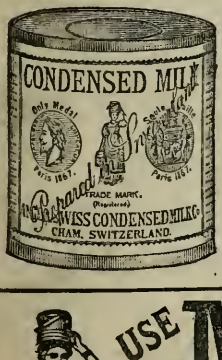

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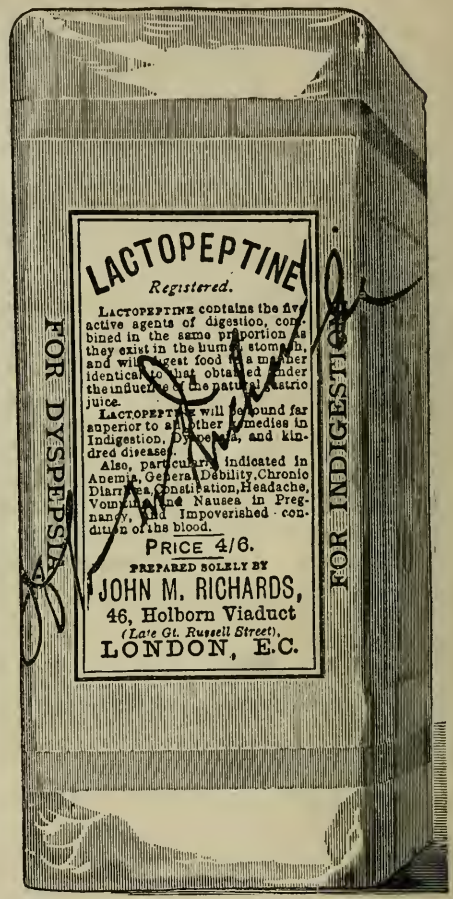
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THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

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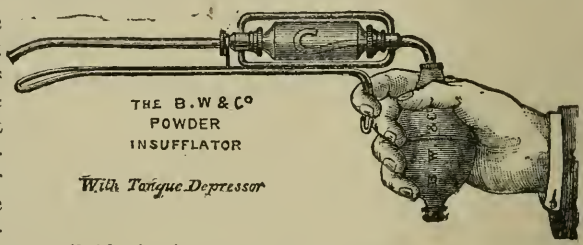

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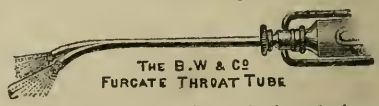

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THE DUBLIN JOURNAL

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MARCH 1, 1894.

PART I.

ORIGINAL COMMUNICATIONS.

ART. VI.—*Treatment of Fractures of the Patella with Separation.* By W. I. WHEELER, M.D., and Master of Surgery of the University of Dublin; Fellow, Member of Council, and Past President of the Royal College of Surgeons; Surgeon to the City of Dublin Hospital, &c., &c.

MANY years ago I brought under the notice of the Surgical Society in Ireland an apparatus for the treatment of fractures of the patella with separation of the fragments, and I subsequently read a paper upon the subject at the annual meeting of the British Medical Association held in Cork in 1879.

This subject had previously occupied my attention from the knowledge that there was a considerable difference of opinion as to the most efficient way of adjusting the fragments, many like myself up to that time holding there was not any satisfactory method of securing bony union by any of the numerous plans advocated—*e.g.*, by position, Malgaigne's hooks, pinning the fragments together, to finally opening the joint and suturing the bones. I was then able to record results of cases treated by the apparatus which I had invented for this purpose, and also exhibited a specimen of osseous union. In that communication I alluded to the most common form of fractured patella in which separation between a superior and inferior fragment occurs.

As may be observed (Fig. 1.), the apparatus I use is a hollow wooden splint extending from above the middle of the thigh to

the sole of the foot, at which point a foot-board (E) is attached by means of a hinge. This splint having two transverse bars, is fitted into a long box splint, in the sides of which it travels horizontally. That portion of the splint where the limb rests can be elevated or depressed, as required, by means of perpendicular slots cut through the sides of the box splint. Thus the splint can be adjusted to suit a long or a short limb, which can be elevated or lowered at pleasure, and the foot can be placed at any angle.

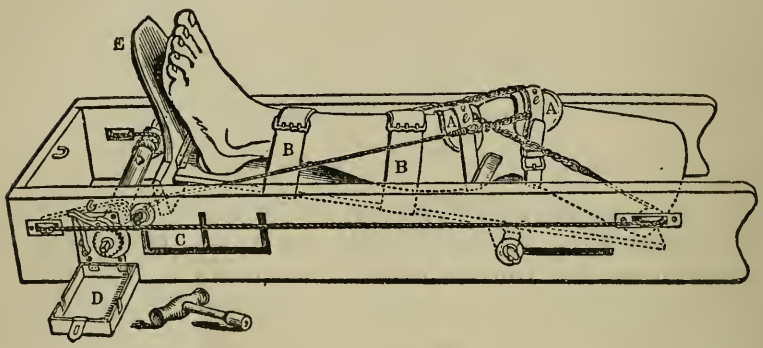

Fig. 1.—A A, Adjusting Pads; B B, Straps securing Limb; C, Slots; D, Brass Cover to Lock; E, Foot Board; *e e*, Buttons on adjusting pads for strap.

The hollow splint is fixed in position by means of thumb-screws, which fit into the transverse bars before mentioned. Two semi-lunar pieces of metal, softly padded, are fixed, one above, the other below, the fractured patella, by means of leather straps which pass round the limb. The leg is secured to the splint by two broad web straps, one round the calf, the other at the ankle (B B). The foot is bandaged to the foot-board. A roller with rack-adjustment is fitted in the box-splint below the foot-board. From this roller start four cords fitted through brass sheaves. The cords are attached, two to the upper and two to the lower metal pads by means of chains and light hooks. The roller is turned with a key, and, acting upon the cords, causes the metal pads simultaneously to approach each other, thereby bringing the fragments into apposition. The rack is covered by a brass box (D), which can be locked so that the adjustment of the splint cannot be interfered with by the patient.

In adjusting the apparatus which is here depicted much care must be taken in the first application of the adjusting pads. Both time and patience are required. If the pads are once properly adjusted they need not be altered until union is obtained. The surgeon should hear or feel the fragments grate together, and should draw the soft tissues well upwards and downwards before applying the pads; the danger of the soft tissues becoming an impediment to union is thus prevented. There is not any occasion to raise the aponeurosis from between the bones with a needle; the crepitation that should be obtained is a sufficient guarantee of the perfectness of the adjustment.

The person from whom the bony specimen (Fig. 2) was taken

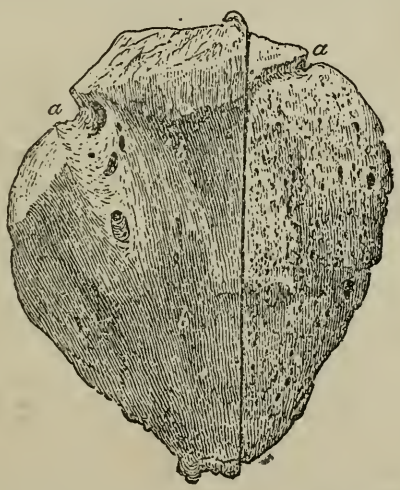

Fig. 2.—*a b a*, Line of Fracture; *b b*, Signs of an incomplete longitudinal Fracture.

died of phthisis two years and five months after being discharged from the City of Dublin Hospital, where he was admitted under my care in September, 1875, suffering from transverse fracture of his right patella, the separation between the fragments being $2\frac{3}{8}$ inches. Muscular action was the chief cause of this displacement. He was placed upon my apparatus immediately; the effusion was subdued in 11 days, when the fragments were brought together by means of the adjusting pads. On the 5th of November a starch bandage was applied; on the 13th of December he was discharged cured. His avocation

required him to get up and down out of his cart (which he did over the wheel) about 440 times a week. This was a crucial test of the firmness of the union. He had all the normal motions of his knee-joint, the patella moving freely upwards, downwards, and laterally. In the man from whom the specimen described (Figs. 2 and 3) above was taken the measurements

Fig. 3.—Showing perfectly continuous Bone.

of the limbs corresponded. After his death I obtained the patella that had been fractured. On the 22nd of November, 1878, my friend, Professor Macalister, then of Trinity College, Dublin, now of Cambridge, wrote me that he had macerated and cleaned the specimen. Having made a longitudinal section through the patella he found it bony throughout, and removed the articular cartilage from its posterior surface. On the anterior aspect of the bone there was no visible trace of fracture, save a slight depression on the inner side, upon the lower fragment and outer facet there were signs of an incomplete longitudinal fracture (Figs. 2 and 3).

That there are, and have been many diversities of opinion as to the best method of obtaining bony union in cases of fracture of the patella with separation of the fragments, is evident from the multitudinous writings upon the subject. The late Mr. Syme advocated a modification of Malgaigne's method by not attaching the screw-hooks directly through the skin, but to a layer of thick mole-skin plaster applied above and below the joint, the limb being placed on an inclined plane, or slung on a corresponding inclination.

The late Mr. Callendar pursued a method, which is described in St. Bartholomew's Hospital Reports, consisting of the application of Neville's Splint, to the foot-piece of which is clamped an iron with two arms projecting beyond the foot-piece. The fragments are approximated by plaster with the assistance of a pulley.

Mr. M'Gill supports Mr. Pridgin Teale's rest of the limb between sand bags.

Mr. Lund, in a paper upon a new method of treating simple fracture of the patella, assumes that the chief, if not the only cause of non-union in such cases, is imperfect apposition of the broken fragments. Having for the first six or eight days kept the limb extended on a back-splint and slightly raised, an evaporating lotion of ice is applied until nearly all effusion within and external to the joint has subsided. Then while the patient is under the influence of an anæsthetic, a strong steel pin is drilled through each portion of the patella from the extern to the anterior border. A small hole is made in the skin by the entrance and exit of the pin, great care is taken in piercing the patella fragments so that the point of the screw pin does not injure the articular surface of the bone. It is directed that these screw pins should be placed as nearly as possible in parallel lines, and drawn very closely together until the broken surfaces of the bone are brought into perfect contact by means of a double screw instrument which holds them firmly in position. While so placed the ends of the pins are enclosed in the coils of very thin copper wire so arranged in repeated turns as to gain great strength; and then when the pins are completely fixed the double acting screw instrument is removed, the broken surfaces of the bone thus remaining, it is claimed, in absolute contact.

Mr. Mayo Robson has also detailed a plan he states will secure a bony union in transverse fracture of the patella, without opening the joint. The skin over and around the joint is cleaned and rendered aseptic, and the joint is then aspirated. He uses two long steel pins with glass heads, then draws the skin well up over the upper fragments, and introduces one pin transversely through the skin and muscle just above the upper fragment, repeating the operation with the other pin at the upper end of the ligamentum patellæ. Gentle traction of the pins then easily brings the fragments into apposition.

There are many other inventions for the treatment of fracture of the patella too numerous to be mentioned. I have only alluded to those methods which have received more attention than others, and to exemplify the diversity of opinion concerning treatment.

Mr. Macewen, in a communication upon "The Chief Cause of

Want of Union in Transverse Fracture of the Patella, and How to Obviate it," advocates suturing the patella together.

An examination of the causes of separation of the fragments shows that the continued action of the quadriceps extensor muscle plays an important part. So, also, does the effusion (which is not purely synovial, or hæmorrhagic, but mixed); also the folding of the aponeurosis of the extensor muscle over the fractured extremities, and in some old cases the permanent shortening of the extensor muscle itself. The theory has been propounded that, when the effusion is subdued, the quadriceps extensor muscle remains in a state of inaction. This is not my experience. I have observed a spasmodic action of the quadriceps, and the patients were able to make the muscle act, although it was difficult to persuade them to do so. I have also felt it contract thirteen days after the accident that caused the fracture of the patella, and have seen increased separation consequent upon contractions.

When the position of a limb is lowered there is an increased space between the fragments; nor is this caused entirely by the falling down of the lower fragments, for I have frequently marked the inferior edge of the lower fragments before lowering the limb. What, then, is the cause of increased separation when effusion has subsided? In every case of fractured patella that I have seen, position has influenced the upper fragments, except in two, where the quadriceps extensor muscle was antagonised by the ligaments of Barkow being intact. In such cases only is the treatment by position at all admissible. In no case have I found the quadriceps weakened or thin when bony union has been obtained.

The only way in which I can account for the weakness and atrophy of the quadriceps, which is said to follow this accident, is by altered blood or nerve nutrition to the muscle, caused perchance by the method of treatment, or that the result has been weak ligamentous union, or the muscle not having a fixed point upon which to work, and the patient consequently not exerting the limb as much as the other—in fact, sparing it. The muscle from such causes becomes weakened and thinned. This is in a measure verified by a case that died in the City of Dublin Hospital some ten years ago. The man, who had been treated for fractured patella by the late Professor Geoghegan, had very close but ligamentous union. He was five-eighths of

an inch less round the circumference of the injured limb above the patella than the sound one; and he told me although he had excellent use and strength in his leg, he "did not make so free with it as with the other one."

There is nothing to show that it is from want of power in the bone to produce osseous material that bony union does not take place. If the fragments are kept in perfect contact by means of a suitable apparatus, bony union becomes so complete that not a vestige of the injury can be traced. Besides, perpendicular fractures readily admit union by bone.

It would be unnecessary to discuss the obvious advantages of bony over ligamentous union. M. Desprès appears to advocate the latter because he can relate cases where patients sustained fractures on two different occasions in the same bone. He states that it was the bone and not the ligamentous union that gave way, and thus attempts to prove that the fibrous union is stronger than the bony. Anyone upon reflection will understand that the seat of the fracture depends upon the position of the limb at the time the fracture takes place.

I have not found it necessary to deviate from the line of treatment I advocated some years ago. I will therefore give an epitome of three out of some fourteen cases which have come under my notice during the last thirteen or fourteen years, and of which I have an accurate record:—

Case I.—In November, 1881, a healthy, muscular man was admitted into the City of Dublin Hospital, suffering from a transverse fracture of his left patella. He fell when getting up on his car, and muscular contraction caused the fracture. The distance between the portions of the broken bone measured $2\frac{3}{4}$ inches. There was considerable effusion. His limb was placed upon my splint, and local and other treatment adopted to subdue the effusion. After a lapse of seven days the adjusting pads were applied, and the upper and lower fragments brought into apposition and proved to be in direct contact, as crepitus could be both felt and heard. The patient remained six weeks in hospital, a plaster bandage having been applied previous to his discharge. I examined his knee-joint very recently; there is perfect union. He wrote to me upon the 19th of February (1894):—"Since I recovered from the effects of the accident I have followed my usual vocation, and have never felt the least annoyance from the knee. So far it is as much use to me as if it had never been injured."

Case II.—A young gentleman of about eighteen years of age, on the 14th of October, 1888, while crossing Lower Baggot-street, was knocked

down by a car and fractured his left patella horizontally by muscular action. There was separation of the fragments to the extent of $1\frac{3}{4}$ inches, and also extensive effusion into the joint. The case came under the care of Dr. C. F. Moore immediately, and as I had to leave town upon the next day but one, for the south of France, he remained under Dr. Moore's care until my return. He considered it necessary to have surgical assistance, and had a consultation upon the 10th of January. Upon my return on the 20th I met Dr. Moore; he told me that the idea was to aspirate the joint on account of the very extensive effusion. The effusion had not subsided, but with the application of ice bags, absolute rest, and other treatment, it was subdued by the 3rd of February, when my apparatus was applied, and the bones were brought easily into apposition. In March a plaster bandage was applied; union having taken place the second bandage was applied on the 18th of April. I kept this patient unusually long in plaster on account of the primary wide separation, and the pronounced muscular strength of his quadriceps muscle. This caused some slight stiffening in the knee, for which he was ordered Turkish baths and massage. I finally flexed the knee under chloroform on two occasions. There is complete osseous union between the bones. If it were not so, the amount of force used to flex his joint would have broken through or stretched any fibrous union. He writes in February, 1894 :— "I have never experienced the slightest inconvenience in my knee from change of weather or otherwise. There has never been the slightest separation between the parts. I am quite as well as before the accident, and can walk any distance. The accident happened to the limb over six years ago."

Case III.—On the 21st of August, 1890, a gentleman about thirty-seven years of age, broke his right knee-cap under the following circumstances :—He was walking on a slope of wet and slippery concrete when the heel of his left boot shot out from him, and on rising to regain his balance, all his weight came on his right leg. He suddenly felt a snap, and immediately sat down, his right leg bent under him, he was unable to rise and had to be lifted. He was brought in a cab to my house, when I found his right knee-cap had a transverse fracture. There was much effusion into his joint which considerably increased that night. Aperients were administered, and ice-bags applied locally, the limb being fixed in my apparatus. About ten days after the accident I was able to draw the fragments together by means of adjusting pads, and eight weeks from the day of the accident I applied a plaster bandage. At the present time he writes that he feels no inconvenience. "I walk from my house to my office and back every day, and can walk very quickly; can go up and down stairs. I have never pain or trouble with my knee." I had an opportunity of examining this gentleman's knee

about four days ago. There was perfect osseous union, but he cannot flex his knee as much as the other, some very little stiffness remaining; he declined to allow me to flex the joint under an anæsthetic.

Of the fourteen cases of which I have notes I treated ten as recent fractures with results similar to the cases I have described, with the exception of two. One was in an unusually developed muscular pedestrian, who did not keep on his bandage long enough, and the osseous union, which, I believe, had taken place, gave way. The fragments are now considerably separated. He has, however, got fairly good use of his limb, and I think some long fibrous bands connect the bones. The second case in which osseous union did not take place, the patient would not submit to treatment long enough, having to leave this country, and only allowed my splint to remain on him three weeks. Therefore, out of ten cases of recent fracture of patella treated by my apparatus, bony union has resulted in all but two. Of the two in which bony union did not take place the result in one was due to the patient's impulsiveness, and in the other to non-compliance with the treatment.

These cases have all been tested and examined from time to time. Except in two there is no trace of separation, the bones moving in one piece, and no inequality can be felt at the site of the fracture. The quadriceps extensor muscles have not got thin or wasted, the circumferential measurement being the same in both limbs. The description written by the patient in Case II. might truthfully be applied to the others.

In four cases of old standing transverse fracture of the patella I opened the joints and wired the bones together. From the length of time that had elapsed before I saw the cases, the considerable separation and very impaired usefulness of the limbs, no other treatment could have been then adopted with advantage. The results in these cases were good. Osseous union followed, and the patients regained full power of their limbs. In one of these cases the quadriceps extensor was so shortened that when I attempted to bring the fragments together, using all the force I possibly could, they were still separated three-fourths of an inch. I therefore adopted the V-shaped incisions which allowed me to bring the fragments together by lengthening the quadriceps extensor muscle. These cases were much slower in recovery, convalescence, and regaining the normal condition than the cases alluded to above.

I have thus recorded my experience in the treatment of fracture of the patella; and from the results I have obtained, I have no reason to alter the method I have pursued for several years.

The dangers of opening a knee-joint, and suturing a recently fractured patella are decried by some. I am aware there are surgeons who advocate the treatment by suturing at once; but, no matter how carefully this operation is performed, it goes without saying that there is risk and peril to the patient. As an example of this—I was called out of town about a year ago to see an officer who had fractured his patella by direct violence, followed by considerable effusion into his joint. I placed the limb in a suitable apparatus, ordered ice to be applied, and other treatment to be adopted until I should see him again in a day or so. But the splint I temporarily designed (not having my own with me) was removed by the surgeon in charge, and from a letter which I received, the patient did not wish to have any other apparatus applied. I was requested to see him again, but declined to do so, as I knew the result would be, at best, a weak fibrous union.

I was subsequently informed that, not having gained power in his limb, he was unable to perform his duties. He had his patella sutured in London soon after, and I heard he had had a drainage tube in his pleural cavity, and was slowly recovering from a pyæmia.

The great majority of the cases of compound fractures of the patella I have seen were caused by direct injury or gun-shot wounds, and necessitated amputation of the limb. Yet, a compound fracture of the patella must not be considered a necessary indication for amputation; for in suitable cases, and when the condition of the surrounding soft parts admit, removal of the fractured patella has been practised.[a] The patella has also been removed for permanent dislocation. The only cases of compound fracture of the patella I had the opportunity of successfully treating without loss of limb were two. One was caused by a kick from a horse. The patella was broken in the centre, and the synovial fluid flowed out. The patient, who was a young gentleman about twenty-five years of age, made a complete recovery. The second case occurred in a man about fifty years of age, who was admitted, under my care, into the

[a] Sir George Humphry (Cambridge).

City of Dublin Hospital, suffering from a compound fracture of his right patella, caused by falling upon the edge of the curb-stone, when carrying a heavy basket upon his back. The fracture was transverse, and situated at the inferior third of the bone; the fragments were readily adjusted. The tibio-patellar ligaments being intact, bony union followed, and his recovery was excellent.

The apparatus shown in Fig. 1 is suitable to any limb. Tilting of the fragments cannot occur; for should there be any tendency to do so a strap that can be fastened to the adjusting pads will prevent it. The traction is downwards and backwards. The splint provides for the position of the limb. There is no pressure upon the arterial supply of the patella. There is no risk to the life or limb of the patient (as might be caused by the hooks or by opening the joint and suturing the fragments). It will produce perfect co-aptation without injury to the soft parts. It can make well-maintained traction upon the upper as well as upon the lower fragment if required to do so. No fluid can separate the fragments. The patient cannot interfere with it when adjusted, as with plaster and other methods. It has produced the best result—bony union.

Art. VII. — *Nephrorrhaphy and Nephrectomy.*[a] By J. S. M'Ardle, F.R.C.S.I.; Surgeon and Lecturer on Surgery, St. Vincent's Hospital, Dublin.

The cases which I shall bring before you cover a field so wide that discussion of them could not be attempted within the limit of this communication. I shall, therefore, narrate brief histories of each, and lay before you some points which I consider worthy of consideration.

NEPHRORRHAPHY.

Case I.—B. H., aged nineteen years, came under my care on March 10th, 1888. She complained of severe abdominal pains of an intermitting character, and chiefly referred to the left of the umbilicus; pain was also felt up to the angle of left scapula, and down to anterior superior spine of left ilium and into thigh. Rest in the recumbent position relieved these symptoms, as also vomiting, which occurred whenever she

[a] Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, February 23, 1894.

made any vigorous exertion. At times she suffered much from headaches, chiefly in the parietal regions.

On examining the abdomen I found the right iliac and lumbar regions distended and tympanitic, while on the left side a tumour could be felt, half of which projected below the interspinous line. A little manipulation brought this mass to occupy the proper position of the left kidney. I now learned that after walking about the patient used to suffer from frequency of micturition, only a small quantity being voided, then copious urination would take place. Traces of albumen were found in the urine.

The diagnosis made was that this tumour was a displaced kidney, which became enlarged owing to its abnormal position.

Operation.—Feeling that it might be necessary to drain the kidney, I operated by a lumbar incision, running obliquely midway between the ribs and crest of ilium, and extending well forwards. On reaching the organ it was found almost purple in colour, once and a half the normal size; the capsule was dense, as I found on passing an exploring needle into the renal substance; there was no nodulation, nor were there any points of fluctuation. Looking upon the condition as one of extreme congestion and œdema due to malposition, I relieved engorgement by free incision into the cortex. A strong silk suture was now passed through the aponeurosis in front of the quadratus lumborum, and then through the fibrous capsule of the postero-external aspect of the kidney, thereby fixing that organ in a good position. A drainage tube was now laid in, and the operation completed. For some days after the operation there was distressing sickness and headache, but ten days after this the wound was healed, the oozing of serum and urine which lasted for some days having ceased.

I call attention to this case because a simple procedure has completely and permanently relieved this girl from a very annoying trouble, and it illustrates the value of dealing with these organs on the general principle that relief of tension is the essential in the treatment of congestive and inflammatory conditions.

I do not wish to be taken as advocating cortical incision or nephrorrhaphy for every floating kidney, nor do I hold with those who explore this organ every time they come across it enlarged or movable. Visual examination and direct touch are very good at times, but they should not take the place of simpler yet effective methods, and no circumstances can justify exposure of our patients to the dangers attendant on renal exploration, until all other methods have been tried without avail. Apart from the dangers arising from sepsis, and from the lethal phlebitis to which this operation exposes the patient, there are other, less widely recognised, but nevertheless very real, mishaps attendant on these procedures.

One of these was well shown in a specimen demonstrated at the last Congress of German Surgeons by Barth. There was a necrotic centre found in the kidney owing to the occlusion of one of the arterial arches by the anchoring suture. A similar condition has been noted as the result of puncture. One of the large arteries is obstructed, hæmorrhagic infarction takes place, and ultimately necrosis. With these evidences of danger before my mind, and the frequent failures to afford relief after the most promising operations, I am far from being an advocate of the indiscriminate tampering with the kidney which is now fashionable.

NEPHRECTOMY.

Case II.—E. K., aged twenty-two years, was sent to me by Dr. Fitzmaurice, of Tralee, on August 20th, 1892. The chief cause of complaint she had was that her neighbours thought she was pregnant, and being unwed, this idea was repugnant to her. On examining her I found what appeared to be a large ovarian tumour occupying the left iliac and the umbilical regions. It was elastic, painless, and movable. The left lower ribs were drawn towards the middle line, and dulness extended up to them. On examining the pelvic organs I found the uterus prolapsed slightly, but uninfluenced by the movements of the tumour, while on suspending the patient by the knees the tumour slipped upwards with a peculiar click, best heard over the lower ribs on the left side. In this position bimanual examination showed that the broad ligaments and ovaries were free of the tumour, and on pressing forward the tissues of the loin a resisting mass was felt as the tumour had slipped into the left side to occupy the site of its original location. I need not detail the history further. Operation was decided on, but delayed in the hope that the patient's attendant, Dr. Fitzmaurice, might come to town, as he expressed a wish to assist, and I much desired his presence. Some days after, however, the patient became weaker, and I was obliged to operate. Assisted by my colleague, Mr. Tobin, I opened the abdomen in the left linea semilunaris. The incision, owing to the size and solidity of the tumour, was made five inches in length. The peritoneum being opened, I passed my hand into the right loin to find there a kidney somewhat enlarged, but otherwise normal to touch. I now laid open the peritoneal covering of the tumour outside the descending colon, and pushing it with the inner layer of meso-colon inwards, isolated the vessels which I double ligatured and divided. As the tumour projected towards the pelvis I did not attempt ligature and section of the ureter until I had isolated the entire mass. Sponge pressure broke down most of the adhesions, only half a dozen ligatures being necessary for vascular bands at the upper and inner aspect of the growth. At this stage of the procedure an unfortunate

accident happened. While engaged in detaching the tumour behind, I felt a great splutter of jelly-like material against my arm, which overlay the tumour, and Mr. Tobin, who was assisting me, called my attention to the fact that a rent had occurred in the wall of the tumour, through which grumous masses and blood tumbled out in great amount. Fearing that there was still some free blood-supply to the tumour, I rapidly turned out of its interior all the movable matter and blood I could find. I grasped the edges of the rent, pulled them well out of the wound, and encircled them (so as to close the opening) with a gauze bandage. While this was being done Mr. Tobin kept the descending colon supported against the abdominal wall, and thus prevented soiling of the peritoneum. Soon the great mass was entirely removed after ligature and section of the ureter. Satisfying myself that no infection of the peritoneum or loin occurred during the operation, I closed the peritoneal cavity. Then I dropped the ureter, completely closed the skin wound, and made no lumbar drain opening. The operation was necessarily protracted and it was some hours before the patient rallied. Then a time of quiet progress, which promised well for the patient, succeeded; but on the fifth day a rise of temperature with some shivering was noted. This was followed on the sixth by a fall of temperature and a discharge of pus in the urine. At first I feared that the remaining kidney was at fault; but careful observation of the urine after washing out the bladder showed that the discharge of pus was intermitting, and, moreover, that the urine excreted at other times was sp. gr. 1023, and contained neither albumen, blood, nor pus. This satisfied me that, so far as the right kidney was concerned, things were satisfactory. The flat abdomen and absence of vomiting or umbilical uneasiness, showed that the peritoneum was safe. Evacuation of the bowels occurred regularly from the third day. With these data to go on, I made an incision above the crest of the ilium, and passed my finger downwards and inwards towards the point at which the ureter should lie, and gave exit to a considerable quantity of dark fœtid pus. On exploring the neighbourhood, I came upon the cause of the distressing complication above noted. A small piece of sponge, which had been placed under the ureter during section, had remained in the wound. On removing it, fully $1\frac{1}{2}$ inches of the ureter came away as a slough. A short strong tube was placed in the wound after flushing with 1 to 2000 corrosive sublimate solution.

For some days the urine contained traces of pus; the dressings were saturated with the same material; but in a short time she returned to Tralee in sound health, in proof of which I now read for you part of a communication relative thereto :—

"Sir,—You will be sorry to hear I am not married yet. The stays fit splendid; but I don't forget the dress you promised me when I get married. I am a credit to you and sweet Tralee."

You can see by the foregoing that she is very much alive.

My reason for detailing at such length a case of such ordinary character is to warn others against a habit which I contracted before I commenced abdominal surgery, and that is to cut or tear sponges so as to conveniently adapt them to irregularities such as occur in the axilla, groin, &c. In this case when I called for a small sponge to place under the ureter, someone, following the bad example which I had so often given, tore a piece from a large sponge, and this was placed under the ureter before division. As the great cavity from which I removed the tumour was packed with sponges to prevent oozing during the final steps of the operation, I overlooked the small piece in their removal. The sponges counted all right, and it was only when grave symptoms set in that I discovered the piece of sponge as detailed above. Since that time I have conducted or assisted at over 50 laparotomies, and I have repeated time and again—"Never tear or cut a sponge during operation."

There are some points in the operation to which I wish to refer particularly.

(*a*). *Line of Incision.*—A cursory reference to the literature of this subject shows that there is great diversity of opinion as to the proper route to follow. In a recent American work (Kean and Whyte, 794) a statement is made which is not in accordance with the views of most operators in these countries—it is that, "Lumbar incisions are to be preferred except in neoplasms of large size." While Robert Abbe, another American, says, "The peritoneum will not be opened unless the tumour be large, and then it is better so." Both of these writers, and many others I could mention, seem to overlook the real position of those who advocate the abdominal incision. The greater freedom of action it ensures, the greater readiness with which ligatures can be applied to the renal vessels, are minor points in comparison to the opportunity it affords us of determining the condition of the opposite kidney before removing the affected one. The strongest point urged by Thornton in support of the abdominal operation is disregarded by these writers. To watch the flow through the ureters with a cystoscope, to catheterise them, or to occlude them by any of the appliances recommended for this purpose sounds well, but works badly, and none of these procedures yield anything like the information derived from transperitoneal touch.

In the accompanying photograph are shown the chief lines of

incision, the names appended being those of strong advocates or originators of the different methods shown.

LINES OF INCISION FOR NEPHRECTOMY.

A Linea alba.
B Linea semilunaris.—Thornton.
C Costo-iliac.
D Lumbo-abdominal flap.—König.
E Sub-costal obliqne.—Kümel.
F Lumbo-abdominal, transverse.—Abbe.

For my part, I shall continue to cut down through the semilunar line whenever I contemplate removal of the kidney—1st. Because the depth of the abdominal wall is less here than elsewhere. 2nd. You come directly down on the renal vessels through this incision. 3rd. Examination of the opposite renal region is easily carried out. 4th. The ureter can be readily followed downwards to the bladder in case it is sacculated, or otherwise so affected that removal is necessary.

The statement by Tait, that "the kidney is best reached by the most likely looking road," only proves that he is disposed to generalise once he leaves the utero-ovarian area.

(*b*). *Ligature of Vessels.*—This operation is still in its infancy, and so other details may fairly be discussed; and one which, in my

estimation, demands full consideration, is the method of dealing with the renal vessels.

It may seem to many that there can be nothing to discuss in reference to this matter, and yet in the most recent communication on this subject I find a surgeon of wide experience describe the steps of a case of nephrectomy in which very copious hæmorrhage occurred during the enucleation of the tumour; but the final step of the operation was double ligature of the renal vessels. The patient died of shock some hours after operation. Old age, low vitality, and weak heart may have aided the collapse; but the cause of death was failure to ligate the pedicle before separating the tumour from its bed. Worse than this, there are cases on record where traction has torn through the large veins, causing such hæmorrhage that death was almost immediate; and I have before me as I write this the records of a case in which a large tumour was torn away entirely without any ligature having been applied. Clamp forceps prevented immediate death, but 14 hours later the patient succumbed. With these instances fresh in one's mind, the advantages of this early double ligature and section cannot be overlooked. 1st. You avoid all traction on the large and often very weak renal veins. 2nd. Rapid shelling out of the tumour is rendered safe. 3rd. Should hæmorrhage occur, it will be from such situations that clip forceps may be safely applied. And 4th. After removal of the tumour, sponge pressure and tamponing with iodoform gauze will effectually check bleeding. I may be told that the kidney must be removed once ligature and section of the pedicle have been carried out; but this is not so, for, if the adhesions are so intimate and vascular that removal seems exceptionally hazardous, acute necrosis is unlikely to occur should the operation be abandoned. Rare, indeed will be the occasions on which the practicability of excision or otherwise cannot be ascertained beforehand.

In my last two cases I applied the ligature before enucleating the kidney, once I satisfied myself that the organ could be removed. I raised the colon and inner layer of meso-colon inwards, and passed the ligature with a large blunt needle, such as is in use for transfixing the broad ligament in cases of ruptured tubal pregnancy.

(*c*) *Catch Forceps.*—I have long felt the necessity for great care in the use of clip forceps in the neighbourhood of large veins. When the flow of dark blood from the bottom of the pelvis, or the loin,

is appalling, one instinctively grasps a pressure forceps. I hesitate before using it, since it has been my lot to witness the ill effects of such appliances on more than one occasion. I have seen the vessel from which a clip forceps has been removed commence bleeding when reaction sets in, and on examining the piece after double ligature and excision I have found the inner and middle coats retracted, leaving only a fenestrated web over the part which had been vigorously pinched by the forceps. Through this blood had welled up freely.

In another instance I have seen fatal hæmorrhage follow the application of a clip to a large vein, while the instances of pelvic phlebitis following crushing of the uterine veins with clamp forceps are not by any means few.

(*d*) *Closure of the Peritoneum.*—For my part, I would advise this to be carried out always, but I should insist on it—1st, when the tumour is malignant, or contains infectious matter; 2nd, when from any cause lumbar drainage is necessary; 3rd, when the ureter is not drawn into the lower angle of the wound; 4th, when there is any tendency to prolapse of the colon.

Now, it must be borne in mind that suture of the peritoneum need not drag upon the colon if the incision has been properly made in that membrane. Even as I recommend this, I have in my mind the unfortunate but instructive case in which Thornton kinked the large intestine by suturing the rent in the peritoneum, thus bringing about a fatal result. I hold that no such sharp flexure should arise in the suturing.

(*e*) *Treatment of Ureter.*—The ureter may be left until the tumour is turned out unless it be decidedly friable. Section of the veins allows hæmorrhage from the tumour unless they are double ligatured, but section of the ureter might infect the wound, and so it is best left until the tissues round it can be protected by sponges wrung out of corrosive sublimate solution. The material I use for all ligatures of vessels is twisted silk, boiled and immersed in 1-1000 corrosive sublimate solution. It does not slip, it runs easily, and it is thoroughly aseptic.

In the case I have brought before you simple ligature and dropping of the ureter was followed by the formation of pus; the small sponge which was left in was aseptic, and would have become encapsuled but for the presence of micro-organisms in the mouth of the ureter. In my early ovariotomies suppuration took place in the region of the cut end of the Fallopian tube. To prevent

this I have in all recent ones drawn out the mucous lining, snipped it off deep down, and applied corrosive sublimate solution 1-1000 to the stump, with a piece of alembroth gauze. Now I never see any evidence of local infection. This I shall in future do with the ureter. Thornton prefers to bring the ureter into the lower angle of the wound (semilunar line), others make a lumbar opening, through which they draw it out and fix it; while I see by a recent communication that good results have been obtained by cauterising and dropping the ureter (Richardson, *Annals of Surg.*, July. 93-101).

(*f*) *Partial Removal.*—A communication which I have received from one of the most skilled and elegant operators of our time, and to which I refer in the table of nephrectomies which I now lay before you, has caused me to refer, in passing, to the question of Resection of the Kidney. Abbe (*Annals Surg.*, 66, Nov., 1893), after detailing a case of removal of part of the kidney, says:—"No similar case to this has been reported." I should hope that few attempts of this kind will be made, as there is no means of determining the limit of cancerous invasion. Kümell, after experimenting on animals, operated on the human subject, removing successfully one-third of the renal substance for abscess and calculus, and one-half in a case of echinococcus. A third case in which he operated died ten weeks later from interstitial nephritis, and on examining the kidney little or no trace of the operation was found. In all these cases fixation to the abdominal wall and tamponing with iodoform gauze was necessary. There are now recorded some 13 cases, with 2 deaths—one from hæmorrhage in a case of cancer, another from thrombosis of the cava; all the others made a permanent recovery. This operation should save many a kidney; and I have no doubt but that further experience will show that it is a procedure of less gravity than complete removal of the organ.

(*g*) *Sarcomata in Children.*—Everyone knows that sarcoma in the adult should be removed if causing pain, great pressure symptoms, or, what is rare, copious hæmorrhages, but Bland Sutton ("Tumours, Innocent and Malignant," 1893, p. 120), speaking of this affection in children, says: "Nephrectomy for renal sarcoma in children is absolutely unavailing, and is fast falling into disfavour." This is a sweeping statement, and although the only case in which I performed nephrectomy for sarcoma in a child bears out his view, as recurrence took place four months after operation, I am far from agreeing with the view that every case

of renal sarcoma in children is beyond the reach of surgery; and the successful cases reported by Abbe and Malcolm should, in the absence of voluminous statistics of an opposite character, make us hesitate before accepting as gospel a view supported even by 21 successive failures.

Operations for Renal Sarcomata in Children under Six Years of Age.

Reporter	Age	Result of Operation	Reference
Ollier	4½ years	D.	Révue de Chir., 1883, 898
Jessop	2¼ years	R. Recurrence and death in 9 mths.	Lancet, 1877. Vol. I., 889
Kocher	2½ years	D.	Deut. Zeitsch. für Chir., Bd. IX., 312
Czerny	11 months	D.	Deut. med. Wochensch, 1881, No. XXXI., 422
Hueter	4 years	D.	Deut. Zeitsch. für Chir. Bd. IX., 527
Croft	2 years	R. Recurrence and death within a yr.	Trans. Path. Soc., Vol. XXXVI., 274
Godlee	1 yr. 10 mths.	R. Recurrence and death in 6 mths.	Trans. Clin. Soc., Vol. XVIII., 31
Meredith	4 years	D.	Brit. Med. Jour., 1884, Vol. II., 863
Owen	10 months	D.	Cat. Mus. St. Mary's Hsptl., 1891
Pughe	2 yrs. 4 mths.	D.	Trans. Path. Soc., Vol. XXXI.
Alsberg	5 years	R. Recurrence, death in 11 weeks	Deut. med. Wochensch, 1887, 873
Rawdon	1 yr. 9 mths.	D.	Liverpool Med. Chir. Jour., Vol. III., 252
Taylor	1 yr. 8 mths.	D.	Am. Jour. Med. Sci., 1887, 470
Brokaw	3 yrs. 8 mths.	R. Rec., and death 2 months later	Phil. Med. News, 1881, Vol. LVIII., 313
B. Sutton	1 yr. 6 mths.	D.	Unpublished
A. Czerny	3½ years	D.	Arch. für Kinderkrank., Bd. XI., 247
König	6 years	R. Rec., death in 5 months	Deut. Zeitsch. für Chir., Bd. XXIX., 590
König	2 years	R. Rec., in 3½ mths.	
König	1 yr. 3 mths.	D.	
Fischer	4½ years	R. Rec., and death in 4 months	
Walsham	10 months	R. Rec. within 12 months	Brit. Med. Journal, 1893, Vol. I., 694
Abbe	2 years	Perfect health 1½ year after	Annals of Surgery, Jan., 1894
Abbe	14 months	Perfect 1 year after	Ibid
M'Ardle	20 months	Recurrence in 4th month, death within 7 months of operation	Dub. Jour. Med. Science, 1894
Malcolm	23 months	Perfect health after 14 months	Lancet, Feb. 3, 1894
M. Hicguet	4 years	Perfect health 6 months after	Bull. de l'Acad. Royale Belg., 1882, p. 41

Operator	Age of Patient	Condition of Kidney, Size, &c.	Method of Operation	When and Where Recorded	Result	
					Immediate	Secondary
F. J. O'Reilly (Trim)	26 years	Scrofulous, 8½ oz.	Lumbar	Trans. Acad. Med. Ireland, Vol. I.	Death from shock	—
K. Franks	29 years	Abscess cavities	Lumbar	1887	Good	Good
F. T. Heuston	14 years	Scrofulous	Lumbar	1887	Good	Good
K. Franks	21 years	Tubercular	Lumbar	1889	Death from co-existing pelvic cellulitis	—
C. Coppinger	26 years	Tuberculous	Linea semi-lunaris	—	Good	Died of phthisis 3 months later
K. Franks	24 years	Cystic, weighed over 2 lbs.	Abdominal	1890	Good	Cure
W. J. Smyly	20 years	Scrofulous, size of fœtal head	Lumbar	1891	Good	Good
J. Lentaigne	40 years	Abscess of kidney	—	—	Good	Good
W. J. Smyly	33 years	Hydronephrosis, size of adult head	Abdominal semilunar line	1892	Good	Good
J. M'Ardle	22 years	Cystic tumour, weighed 7 lbs., simulated large ovarian tumour	Abdominal semilunar line	1892	Good	Now in perfect health
J. M'Ardle	20 months	Myo-sarcoma, filled greater part of abdomen	Abdominal semilunar line	1893	Good	Recurrence four months after; death within 7th month of operation
C. Coppinger	F. 53 years	Carcinoma, size of ostrich egg	Abdominal	—	Fistula for one month	Good

I am pleased that a debate on this subject will be the first business at the next meeting of the Clinical Society of London, when Mr. Sutton, in opening the discussion, will have an opportunity of explaining more fully the grounds on which he bases so definite and so humiliating a statement.

With the approval of the author of this work I transfer this collection, and to it add such cases as I could find, thus bringing the number up to 26. Even if only one of these cases is completely restored to health, the operation is justifiable, but when we find that 20 per cent. of all cases recovered and remained well after the procedure, I think it unreasonable to condemn an undertaking of which we have as yet very little experience.

These are the points to which I desire to call attention; but before concluding this communication, I wish to call attention to the position of Renal Surgery in Ireland.

The table which I now present includes, I hope, all the cases of nephrectomy carried out in this country, and I take this opportunity of publicly thanking those busy practitioners who, in the rush of work, were kind enough to fill up the cards I took the liberty of sending in search of such information as would, I thought, render more interesting my communication. The number, though small, is very encouraging, as the results show that care was exercised in the selection of cases, and great skill displayed in dealing with them. If the record but tends to prove to such as are not themselves engaged in operative surgery, that the very gravest lesions of the kidney may be successfully dealt with by nephrectomy, my effort will not have been in vain, and it is my hope that those who have so gracefully assisted me in bringing forward this question may reap their reward in having more frequent opportunities for a display of that genius which keeps Irish surgery in the honoured position which it holds.

ART. VIII.—*Andrew Vesalius.* By GEORGE MATHESON CULLEN, M.D., M.Ch. Univ. Edin.

To the philosophers of this later time biology seems to have made all things clear, and for the explanation of body and soul, of mind and morals, there is but one formula—the survival of the fittest. This is the magic phrase which enables them to read aright the wonders of the heaven above, and of the earth beneath, and of the waters underneath the earth. It is the law which guides the world and everything in the world. So at least we are told, but I fear our teachers have not sought for the application of this principle in books on biography, for there they would find an instance showing that the extension of their law falls short of universality. Indeed, in the pages of that sort of literature almost the reverse holds good, and we might say that, for the most part, it is the least fitted that survive. The good king is dismissed in a few words, while the cruel tyrant is welcomed to many a page. "For the iniquity of oblivion blindly scattereth her poppy, and deals with the memory of men without distinction to merit of perpetuity. Who can but pity the founder of the Pyramids? Herostratus lives that burnt the temple of Diana; he is almost lost that built it. Time hath spared the epitaph of Adrian's horse, confounded that of himself." And Sylvius is remembered while Vesalius is forgotten.

It is an undoubted fact that many students pass through their medical curriculum without getting any, even the slightest, notion of who Vesalius was or what he did. Such a state of things can scarcely be improved so long as the history of medicine is so neglected in medical education; but it is still more unfortunate that anyone desirous of learning something about the Flemish anatomist will find but scant information in our encyclopædias and dictionaries of biography. In French and German there are painstaking monographs on Vesalius, but in English there are only a few imperfect sketches. In the following pages I have endeavoured to supply this want and give as full an account of the man as our present records will supply, and I have striven to free it from the inaccuracies and misstatements which have been repeated so often that they have become, in the minds of many, undisputed truths. I have divided my study into two parts. The first is more strictly biographical,

and the second treats of the work of Vesalius and of his influence, and of bibliographical and other matters which could not be introduced into the first part without marring its directness and disturbing the sequence of events.

Part I.

En fouillant dans le corps humain, il decouvrit pour ainsi dire un nouveau monde, avant l'age de vingt huit ans.—*Senac* (1749).

Vesalius was sprung from a branch of the well-known Flemish family of Whiting or Witing.[a] His forefathers had originally lived in the town of Wesel in the Duchy of Cleves, and from this fact they were called "von Wesel," which was Latinised into Weselius or Wesalius, and finally took the more classic form of Vesalius.[b] The town itself took its name[c] from the weasels which were formerly found in large numbers near it—wesel being the Flemish name for that animal—and considering the origin and significance of the family name, it is only what we would expect when we find three weasels figuring in the family coat of arms.[d] It would seem that for many generations the genius of the family was strongly bent towards medicine, and we have several recorded who became very famous doctors. Peter Wesalius was a well-known physician of his time, and his son John was so distinguished in his profession that he was appointed physician to Maria of Burgundy, who married the Emperor Maximilian I. Feeling himself unequal to his courtly duties John withdrew to Louvain, where he publicly taught medicine, and spent the remainder of his life in quiet retirement with the Muses. One of his sons, Everard by name, succeeded him as court physician, and gave promise of great things, which his early death at the age of thirty-six left little opportunity of fulfilling. Andrew Wesalius, natural son[e] of Everard, became court apothecary to the Emperor Charles V., and married Isabelle Crabbe,[f] by whom he became

[a] Also called Wytink, Witting, Wittings, &c.

[b] Vesalius first appears in 1537, when Andrew took the degree of Doctor at Padua.

[c] Encyclopædia Britannica. Ninth Edition. Article Wesel. Vol. XXIV.

[d] Turner (Gaz. Hebdom. de Méd. et de Chir., 1877, No. 28) suggests that three poppy heads formed the coat of arms. There is no evidence for this, for the shield, as seen on the title page of the Anatomy and the Epitome, shows the three weasels, and Vesalius speaks of them as "meæ mustelæ." Op. Omnia. 1725. Vol. II., p. 653.

[e] J. Herkenrode. Nobilaire des Pays Bas. 2 Vols., 4to. Gand. 1870. Vol. I., p. 64.

[f] Ibid.

father of several children, among whom was the future founder of anatomy.[a]

It was in the grey dawn of a winter's day, December 31st, 1514 (or, as others suggest, January 1st, 1515), that Andrew was born[b] in the town of Brussels, the capital of Brabant. Of his early years there is no record, but he himself relates how his boyish mind turned instinctively and with delight to the dissection of dogs, cats, moles, &c. It is not, perhaps, very uncommon to find boys with such a taste well developed, but in his case it is specially interesting, as showing that the attraction to this kind of work was innate in him. While still a mere boy he was sent to the University of Louvain, then of considerable reputation, and here began to show that great power of application and those wonderful mental talents for which he was afterwards so remarkable.

In Physics and in Latin and Greek he is said to have been specially proficient, and to have distinguished himself above his fellows. It is usually stated that Joannes Guinterius Andernacus was his teacher in Greek, but this is very improbable,[c] as the latter left Louvain for Paris when Andrew was only twelve years old, and under the age, therefore, at which Greek was usually taught to boys.

The family tradition, and, no doubt, his own inclination, turned Andrew to medicine, and, accordingly, he repaired to the famous Medical School of Paris about the year 1533. Some say that the young student spent some time in Montpellier before going to Paris, but of this there is no proof. In the French capital the most celebrated teacher was Jacques Dubois, or, as he is better known, Jacobus Sylvius, a mean, miserly man, who merited little the great reputation he enjoyed, and who in his old age turned his attention to anatomy, as

[a] In addition to Andrew we know there was a brother, Francis, and a sister.

[b] The earliest authority, P. Eber (Calend. Histor. Witeb., 1550), gives the day as January 1st, 1514, and he is followed by Pantaleon (Diar. Histor., 1572) and by Adam (1620). Castellanus (1618) has Pridie Kal Maii, 1513, while Sweertius (Athen. Belgic, 1628) and Johannis Imperialis (Musæum Histor., 1640) agree upon Kal Maii, 1513. The portrait of Vesalius in the Anatomy and the Epitome has the subscription—An. aet. 28, 1542, which makes birth in 1513 impossible. Roth (Andreas Vesal, Brux., 1892, p. 58) makes the suggestion that the 1st January, 1514, would be counted under the old style, when the year was made to begin and to date from March, and that, therefore, the real date is January 1st, 1515.

[c] See article by E. Turner. Gaz. Hebdom. de Méd. et de Chir., 1881. Nos. 27 and 28.

lectures on that subject promised to pay better than those he had up till then given on the languages of Greece and Rome. Under this man Andrew studied, and he seems to have regarded his master with feelings of esteem and veneration, which the disgraceful attacks the latter afterwards made upon him did not altogether destroy. Among those who attracted the young Fleming most, and whose learning most demanded his respect, he himself mentions[a] Guinterius, Joannes Vassaeus, Johannes Fernellius, and Oliverius. But, as regards anatomy, Andrew may be said to have been taught nothing,[b] and he was not a whit straining of the truth when he declared that he held no man to have been his teacher; for the lecture consisted of nothing more than the reading of Galen by the professor, who sat on high in his rostrum, and who relegated the dissection of the animals used, to a servant, often a surgeon barber. Human bodies were very rarely obtained, and when one was dissected the same rule held good—the ignorant barber did the work, while the teacher looked on[c] and directed the incisions, but would not demean himself so far as to use the knife. Can it be wondered at that such instruction failed to free anatomy from the mists of uncertainty in which it had been so long enshrouded? If there was some structure not to be found, or if fine parts were not clearly dissected out, there was no redress at the hands of the professor, who, with unruffled serenity, left the students to their doubts and difficulties. The quick eye of Vesalius detected this terrible mistake, and, stimulated by the recollection of what his fathers had done for medicine, he determined to rescue anatomy from the living death in which it lay entranced. It was no empty boast of his when he said[d] that anatomy would not have advanced with such rapidity had he been content with the superficial dissections offered him by the barbers. But he was not satisfied with this state of things. He examined the bodies of the dogs, &c., most carefully, so that he would frequently be able to show his comrades something which

[a] In Epist. de Chynæ Radice. Opera Omnia. Vol. II.

[b] Opera Omnia. 1725. P. 675.

[c] An illustration in Ketham's Fasciculus Medicinæ (Venice, 1493) shows admirably this method of teaching. See also Puschman's History of Medical Education (London, 1891), p. 325.

[d] Verum id studium neutiquam successisset, si quum Parisiis medicinæ operam darem, huic negocio manus non admovissem. Ded. ad Cæs. De Hum. Corp. Fabrica.

the teacher could not find, and in a short time he became recognised as a most skilful dissector. As already stated, dissections of human bodies were rare, and Andrew had an opportunity of seeing only two cases during his three years' stay in Paris. Just before leaving he was present at a third case, and it is sufficient proof of his acknowledged excellence as a dissector that he was asked by both teacher and students to undertake[a] the demonstration of the body. These examinations were almost entirely limited to the inspection of the viscera, and there was never a demonstration of the human bones, arteries, nerves, or veins, and, with the exception of the muscles of the abdominal wall, that series of organs was also quite neglected.[b] But Andrew had not only gained a thorough knowledge of the anatomy of the dog; he had also gone to great pains to learn accurately human osteology. To get bones he was forced to haunt the cemetery of the Innocents, and to fight nightly with the fierce dogs that infested Mons Falconis, where criminals were executed.[c] But these were merely fresh stimulants to the ardent student, and he himself records it[d] as a wonderful fact that he stood blindfolded to be examined by his fellow-students, and yet failed not to recognise by the touch every bone presented to him. Nor did his genius fail to impress itself upon his teachers. Guinterius mentions him by name several times. In his Anatomy, published in 1536, he speaks of Andrew Wesalius as a young man of great promise, who, in addition to his singular knowledge of medicine, and his deep learning in the Latin and Greek tongues, was also a man most dextrous in the dissecting of bodies.[e] In the edition of 1539 Guinterius mentions in the preface that he was greatly indebted to Andrew Wesalius, a wonderfully diligent student of anatomy.[f]

Towards the end of 1535 Francis invaded Italy, and probably foreseeing that war with the Emperor Charles V. must soon

[a] Dedicatio ad Cæsarem.

[b] Præter octo enim abdominis musculos turpiter . . . nullum unquam musculum, ut neque etiam os aliquod, multoque minus adhuc nervorum, venarum, and arteriarum seriem, quisquam mihi commonstravit. Dedic. Cæsar.

[c] Dedicat. ad Cæsarem. De Hum. Corp. Fabrica.

[d] De Hum. Corp. Fabrica. 1543. Bk. I., 39. P. 159.

[e] Joan. Guinterius Andernac. Institutionum Anatomicarum. Paris. 1536. P. 32.

[f] Instit. Anatom. Paris. 1539. Epist. Nuncup. "In qua re . . . auxiliarios habeo primum, Andream Wesalium, juvenum mehercules in anatomia diligentissimum."

follow, Andrew returned to Louvain,[a] where he remained for about a year. Not long after his arrival he had the good fortune to become possessed of a human articulated skeleton, then the only one in the world. The manner in which he gained this treasure is worth repeating, as it shows not only the character of the man but also gives a good idea of the state of manners at his time.

Vesalius[b] was taking a walk with his friend Gemma Frisius, the famous mathematician, when chance led them through one of the gates of the city into the country beyond. It so happened that the place of public execution was at a little distance from the town, by the side of the road along which they were walking, and the attention of the two friends was soon fixed on a gruesome collection of decaying and dismembered bodies. But Andrew noticed particularly one stake, to which had been attached the body of a robber whose flesh had so particularly attracted the birds of prey that they had picked it clean away and left the bleached bones to dangle in the sunshine, held together solely by the joint ligaments. Human bones were not scarce in that warlike age, but few were to be found in the academies of learning, and such a thing as an articulated skeleton was not even dreamt of. But Vesalius saw the opportunity and determined to get this robber's bones. By their united exertions the lower limbs were separated from the body, but the rest of the skeleton was above their reach and firmly chained to the stake. To attempt more then would be injudicious; it would take time and might lead to their discovery, and in any case they could not bring all the bones unseen into the city. They were content, therefore, to hide the bones they already possessed under their cloaks, and walked homewards as discreetly and circumspectly as possible. Towards dusk of the same day Andrew sauntered out of the city and wandered about till midnight, when he thought he would be able to finish his task without interruption. At this hour, accordingly, he repaired to the place of execution, and undeterred by the hideous creaking and clanking of the rusty chains as they swung to and fro in the wind, without a thought of the

[a] "Lutetia namque ob belli tumultus Lovanium reversus." De Hum. Corp. Fab., 1543, p. 161.

[b] Vesalius tells the story himself. De Humani Corp. Fabrica, 1543. Bk. I., chap. 39, p. 161.

horrors around him, the mangled and decomposing bodies looming huge and ghastly through the darkness, his mind intent upon his task alone, he climbed to the top of the stake, and after considerable exertion managed to free the rest of the skeleton. He then took the bones to a secluded spot, where he buried those he could not conceal about his person. At dawn he entered the city gates, and having deposited his ghastly burden at home, returned for the rest, which lay hidden. Then he set to work and articulated the bones together, and soon was able, with no small pride, to show his astonished friends and students the articulated skeleton "which he had brought from Paris"—a fiction which was needed to allay suspicion.[a]

It may appear to be a curious anomaly, that while it was lawful for the robber's bones to lie as an eyesore by the public highway, yet it was not allowable to take the same bones and use them in the cause of science. But anomalies will ever exist, and it is the part of the man of genius to point them out and to find means to free the world from their fetters.

The teaching of anatomy had almost died out when Andrew returned to Louvain—indeed 18 years had elapsed without a single dissection having been attempted. But the enthusiasm of that young man soon brought about a great change. He became Demonstrator of Anatomy, and in that capacity publicly dissected a human body. But he had also other work on hands, and wrote a paraphrase[b] upon the ninth book of Rhazes, which was published in February, 1537. By this time, however, Andrew had gone to Brussels—indeed the dedication of the book to his friend Nicolaus Florenas, the Emperor's physician, is written from that town. From Brussels he journeyed into Italy, where anatomy was being taught in a much better manner than elsewhere, and where he, no doubt, hoped that he would be able more fully to justify his intense love for that science. He stayed at Venice for some time to learn Medicine, which was taught in a much more practical way than it had been in Paris. The hospital where the students studied was kept by the Theatine monks, and Vesalius would thus be brought in contact with

[a] Some say that Vesalius was exiled from Louvain when the true story became known. Of this there is no evidence. Vesalius declares (p. 161, Ed. 1543), that the burgomaster was much interested in anatomy, and did his best to supply bodies.

[b] Paraphrasis in nonum librum Rhazae Medici Arabis clariss. ad Regem Almansorem . . . . authore Andrea Wesalio, Bruxellensi, medicinae candidato. Lovanii ex officina R. Rescü, mense Februar, 1537, 8vo, pp. 224.

John Peter Caraffa, the head of the order (afterwards Pope Paul IV.), and with St. Ignatius Loyola who was staying with him. Here, too, he first saw the Chyna root[a] used, and here he met his fellow-countryman John Stephen von Calcar, who was studying painting under Titian. Towards the end of 1537 Andrew went to Padua, where he was admitted to the degree of Doctor[b] on December 8th. But his fame as a dissector had gone before him, or had been already displayed by him in that city, for we find him[c] beginning the demonstration of a dead body on December 6th. When he was definitely appointed Professor of Anatomy and Surgery is not known, but in the archives of the Venetian Senate we read, under date 11th Oct., 1539, that "it was agreed to augment the salary of Andrew Vesalius, who had been Professor in Padua for some years past."[d]

And thus, at the early age of 23 years, Vesalius was appointed teacher in one of the most distinguished universities of Europe. He had already demonstrated in Paris and in Louvain, and was well known as an able dissector and a skilful lecturer. But it is necessary to have a clear idea of his attainments at that time, in view of the enormous development which his genius showed during his six years' residence in Italy. His knowledge, after all, was very limited; he was, indeed, a skilful dissector, he was fairly conversant with the anatomy of dogs and smaller mammals, and he had carefully mastered what Galen had to say on the subject, but as yet he had probably not dissected more than half a dozen human cadavera, and none of these in anything like a scientific way. In a word, he was a brilliant product of the old school, but as yet there were no signs of his revolt against the authority of his teachers. That his thoughts had not yet shown him the new path which must be trod, is evident from the revised edition of Guinterius's Anatomy,[e] which he published in 1538, and from his careful study of the text of Galen, the fruits of which are seen in the edition[f] of that author published

[a] Epist. de Chynæ Radice. Op. omnia, Vol. II.

[b] Roth's Andreas Vesalius, Bruxellensis, Berlin, 1892, p. 425.

[c] Roth, op. cit., p. 456, gives original document.

[d] Roth, op. cit., p. 428, gives original document.

[e] Institutionum Anatomicarum . . . . per Joannem Guinterium Andernacum ab Andrea Wesalio, Bruxellensi. Venitiis in off. D. Bernardini. 1538.

[f] Galeni omnia opera nunc primum in unum corpus redacta. Apud hæredes Lucæ Antonii Juntæ Florentini, Venitiis fol. 1541.

by the Venetian printer's-Junta, in 1541. But he had now a recognised University status, and with additional bodies for dissection, and with increased pains and study bestowed on the work, he gradually began to doubt the soundness of his old faith, and the more accurate his dissections became, the more difficulty he found in fitting them to Galen's description of them.

Moreover, it must be remembered that Vesalius was not only Professor of Anatomy but of Surgery as well, and that with two subjects on hand he would pay considerable attention at first to the one in which he was less well versed. But his devotion to surgery was a distinct gain to anatomy, for it first suggested to him the idea of making engravings of dissections. He had been lecturing on the subject of Inflammation,[a] and in order to make the much-disputed text of Hippocrates somewhat clearer, he drew a sketch of the veins of the body. This drawing delighted his students and colleagues, and they begged of him to make others. And as it was difficult to copy these illustrations he determined to print them along with three designs which Joannes von Calcar had made of a skeleton he (Vesalius) had articulated for the use of his students. These woodcuts appeared in April, 1538.[b] In his preface to them he rather apologises for printing them, but he argued: "Although it would be hard—in fact, altogether impossible—to learn anatomy in this manner, no one will deny that it greatly aids the memory in retaining details." The success of this enterprise was great, and led Vesalius to embrace the idea of displaying the whole body by means of such plates.

It is so customary to think of Vesalius as a great anatomist, and in so special a manner is that study associated with his life in Italy, that one is tempted to forget that he did other things. His leisure was to a considerable extent spent in learning Hebrew and improving his knowledge of Arabic, under the guidance of

[a] Quum Patavii ad medicinæ chirurgiæ lectionem delectus, inflammationis curationis pertractarem, divi Hippocratis & Galeni de revulsione ac derivatione sententiam explicaturus, venas obiter in charta delineavi, ita ratus quid, per κατ' ἴζιν Hippocrates intelline facile posse demonstrari. Tabulæ sex Vesalii. Epist. Nuncup.

[b] Andreæ Wesalii Tabulæ Anatomicæ sex, Venitiis. On last page—Imprimebat Venitiis B. Vitalis sumptibus Joannis Stephani Calcarensi. Prostant vero ex officina D. Bernardini, A. 1538. (London: Privately printed for Sir W. Sterling Maxwell, 1874.)

his friend Lazarus Hebræus de Frigeis. His time as Professor was largely occupied with surgical and medical instruction and practice. At that time it was not necessary that the Professor of Surgery should himself be able to do any operation, but Andrew seems to have acquired a very accurate knowledge of this branch of his profession, as his subsequent success as Imperial Surgeon clearly shows; and, moreover, he appears to have performed such simple operations[a] as blood-letting. Indeed, he was keenly interested in a great controversy which had arisen on the subject of bleeding as applied to the relief of Pleurisy. In such conditions Hippocrates had urged local bleeding, but the Arabs departed more and more from the practice, till it had become the routine observance to bleed from the foot. In 1522, however, Pierre Brissot, a Parisian physician, went back to the primitive method, and published an apology for it.[b] Thereupon arose a very great discussion, to which Vesalius contributed his first piece of independent research. He had examined the relations of the vena azygos to the pleuræ, and came to the conclusion that the easiest way of relieving the congestion in that vessel was by bleeding from the right arm at the bend of the elbow.[c] He was greatly interested also in the therapeutical aspect of Medicine, and set about collecting materials for a work on drugs and formulæ. His improved knowledge of Arabic was used in translating the whole ten books of Rhazes, and he is himself responsible for the statement[d] that this complete Paraphrase was of much greater merit than the one he had already published on the ninth book alone.

All these things notwithstanding—and his activity in these directions was neither slight nor unimportant—it must yet be confessed that in an ever-increasing degree he gave himself up to his extraordinary predilection for anatomy. At first, as I have already pointed out, his guiding star was Galen. He had intended to issue an edition of Galen's works, with notes of his own observations—and indeed such a note-book he kept by him during his whole career as Professor. But he had hardly demonstrated the human bones three times,[e] according to the

[a] "Duas sectiones in ramis axillaris venæ sub cubite media regione aperuimus." De Hum. Corp. Fabrica. P. 293.

[b] Sprengel's Histoire de la Médecine, Vol. III., p. 141. 8vo. Paris. 1815.

[c] Opera Omnia (1725), Vol. II., p. 680.

[d] Ibid.

[e] Opera Omnia, Vol. II., p. 681.

manner of the philosopher of Pergamos, when to him came a glimmering of a new and wondrous light by which he began to read anatomy, not in the mystery-laden words of the huge musty folios of the ancients, but in the clear legible character written in the open book of man's body. A new and wonderful light indeed, the light of Truth! But to the poor men who had for long years been groping on with the miserable candle Galen lent them, trembling in their hands, to them the glare was too much, and many lost even the little mental vision they ever possessed.

To some extent, then, we must commiserate those who saw nothing in the fire this new Prometheus had brought down from heaven, and we must bear with them if their feelings found logical expression in denouncing the man who had introduced what they considered a pernicious novelty.

But with Vesalius the light was not shed in vain. Galen, he saw, had not written his descriptions from the human body, and thus there was before Vesalius a most wonderful world to explore. The ordinary slow succession of bodies—a few in a year—provided by the town authorities was not enough to keep his tireless hand at work. Bodies must be procured at any cost, and, like all really great men, Andrew had a commanding influence over his students and those with whom he came in contact, and so he had ever at his hand a band of enthusiastic and devoted followers. Nor did he stint to use this power to the fullest. Influence was brought to bear on the town authorities, so that more bodies were provided, and the quiet of midnight was disturbed and the sanctity of the churchyard broken in upon by Vesalius and his friends in search of "subjects." At first these resurrection raids were made in the town, but suspicion and the vigilant eye of the night watcher made it necessary to go further and further away, till at last bodies were smuggled in from long distances. It was a fearful and most harassing life, for, in the then condition of society, to be found out would be equivalent to death. We can imagine the anxiety with which a body was carried into the city bundled up in some unassuming vegetable basket or hay cart. How all concerned must have trembled with fear even after the burden had been deposited at the house of Vesalius, or smuggled into his wooden amphitheatre.[a] No one could breathe freely

[a] A permanent stone building did not exist for many years after this.

till the skin had been completely removed and an unrecognisable corpse[a] lay on the table. But all these unspeakable troubles and dangers were cheerfully undertaken by Vesalius, and they brought their own reward, for the result was that often several bodies were dissected during one course of demonstrations; and such a plethora was there sometimes that the magistrates were asked to put off the impending execution of some criminal to a more favourable time.[b] In this manner Vesalius gained a knowledge of human anatomy altogether unique, and he was able dogmatically to assert that Galen was wrong. He even went further and tried to find out if that physician had any foundation for his statements, and he discovered that he had, that, as applied to monkeys, his descriptions were fairly accurate. The evident conclusion was that Galen, considering monkeys similar in structure to man, dissected them and described them as if they were human beings.

But this extraordinary scene at Padua had drawn the eyes of scientific Europe towards that town, and students, both old and young, flocked thither from all parts. And they departed full of wonder. This course was no mere reading of the books of Galen; it was a practical demonstration of the human body lasting some four weeks or so, and going systematically through the series of bones, nerves, arteries, veins, organs, &c. Nothing like it had ever been seen before, and ever and anon would the lecturer turn aside to show where the old leader had gone astray and given erroneous descriptions. The trumpet of fame rang the praises of the young anatomist through the known world. But there were those who, as I have already said, could not see the light; and in addition to this, which might merely be their misfortune, was joined the selfish desire not to see it, for many of these had gained celebrity as professors of anatomy under the old system, and to prove that system wrong was to deprive them at the same time of their salary and of their fame. No wonder, then, that an outcry arose against Vesalius, and that he became exposed to continual assaults. Eustachius in Rome, Dryunder of Marpurgi, and Sylvius of Paris, giants in themselves, were the leaders in the attack upon the innovator. Sylvius wrote him[c] that he could no longer consider him his

[a] Vesalius mentions this method of defeating recognition. In Op. Omnia, p. 463.
[b] Opera Omnia (1725). Vol. II., p. 680.
[c] Vesalii, Opera Omnia. Vol. II., p. 680.

friend if he persisted in declaring Galen in error, but he said he was preparing a new anatomy and would be glad to include in it the discoveries Vesalius had made. Indeed, had Vesalius merely written the results of his own observations without making any reference to Galen, he would have saved himself infinite annoyance and discomfort; but his genius could not be confined within such limits. He had not only to demonstrate the truth, but he was constrained to the far more difficult and painful task of denouncing error. And so he went on bravely with his work, gathering together what was to be the first scientific exposition of the human form. He had already been impressed with the value of woodcuts in this connection, and he determined to spare no expense so that everyone who bought his book would have clear proof of the truth of the statements contained in it. In 1539 he lost the help of John Stephen von Calcar,[a] who went to reside at Naples, and how the designs of the plates were effected is not certainly known, but probably Calcar had finished a considerable number before he left, and as Vesalius had himself already designed three plates,[b] it is quite possible that he may have done some more for his proposed book on anatomy.

(*To be continued.*)

ART. IX.—*Recent Developments in State Medicine.* By D. EDGAR FLINN, D.P.H., F.R.C.S.I., M.R.C.P.I.; President State Medicine Section Royal Academy of Medicine; Examiner in State Medicine, Royal Colleges of Physicians and Surgeons' Conjoint Board; Fellow and Member of Council, British Institute of Public Health, &c.

AT the meeting of the Sanitary Congress, held at Dublin in 1884, now just ten years ago, I communicated a paper on the administration of the Public Health Act in Ireland, which elicited a discussion not without interest, in which Sir Robert Rawlinson, C.B. (the President); the much-regretted Dr. Alfred Carpenter, of Croydon; Professor De Chaumont, F.R.S., of Netley; Sir Charles Cameron, and others, took part. Since that time considerable developments have taken place, and the administering of the Public Health Acts has undergone an improvement for

[a] Vesalii, Epistola de Vena Secanda. Basileæ. 12mo. 1539.
[b] Vesalii, Tabulæ Sex. 1538. Epist Nuncup.

the better. The Legislature has aided in this direction, and the passing into law of such useful measures as the Housing of the Working Classes Act, the Infectious Diseases Notification Act, the Open Spaces Act, the Contagious Diseases Act, the Factory and Workshops Act, the Margarine Act, have all had a useful and far-reaching influence. The improvement consequent on this legislation, though slow in making itself felt, will eventually have a good effect; and though our Irish public bodies yet lack energy in moving forwards on the questions immediately affecting the health of the people, there is, however, a visible improvement on the conditions which existed some years ago, and there is some inclination shown to carry out the State enactments relating to health. The cry of not burdening the overtaxed ratepayer is, however, yet heard; but the creation of an intelligent public opinion grows more and more every year, and the nationalisation of the questions of health economy now runs side by side with the nationalisation of education. It is probable that when the advantages accruing from sanitary science, taken in the broadest acceptation of the term, become better known, the prospects of Irish public health administration will become much brighter.

Quite recently it has been suggested that the time has now arrived when a Minister of Health should be appointed by the State. Sir Benjamin Ward Richardson some years ago strongly advocated the appointment of such a Minister. It is doubtful, however, whether the country is even yet ripe for such a departure; but the day is not far distant when this question will seriously engage the attention of the Government of the day.

It has with truth been said that panic is the parent of sanitation, and if we look back to the history of public health legislation for the past half century or more, we must recognise the force of the remark. As far back as the commencement of the eighteenth century, Dr. Mead, a distinguished physician of that day, and endowed with ideas much in advance of his time, strongly advocated the formation of a central Board of Health, and it was just a century later that any practical measures were taken towards the consummation of that object.

In 1842 Sir Edwin Chadwick issued his Report on the "Sanitary condition of the Labouring Population of Great Britain." The effect of this Report was very marked, and it, no doubt, initiated the era of collective action as regards legislation

directed to the preservation of the national health. A Royal Commission followed the appearance of this Report, and this was the first direct step in the advancement of Sanitary Legislation. It undoubtedly appears to have been the first move of the Government of that day to recognise the public health as a State interest. A year or two later the first appointments of medical officers of health were made in England—viz., in London and Liverpool—under the influence of the terror of an outbreak of cholera in 1848. A Board of Health was establlshed, and it was during the prevalence of this epidemic that those searching inquiries were instituted by the Government, which led to the discovery that the spread of the disease was due to the pollution of water by the intestinal discharges of patients. That discovery, alarming as it was at the time, had most beneficial and fruitful results. It demonstrated the importance of the purity of water-supply; it, moreover, proved the necessity for proper systems of drainage, and helped very materially to lay the groundwork for the many subsequent sanitary reforms which have since been inaugurated; it further paved the way for the elaboration of a system of vital statistics which have been so invaluable to the country.

In 1866 there was again a revival of a cholera scare, which gave an impetus to fresh sanitary legislation, and in 1872 provision was made throughout Great Britain for a complete system of sanitary organisation, and the universal appointment of medical officers of health. Following upon this came the enactment of the Public Health Act of 1875, and the Irish Public Health Act of 1878. The occurrence of a number of cases of cholera in England in 1893 was again the cause of increased sanitary activity, and to this activity may be attributed the comparatively brief sojourn of the disease, which at one time threatened to assume a widely epidemic form. The sanitary defences of the country were so thoroughly and rapidly organised that the complete stamping out of this dreaded malady was accomplished in a short time, and it will be admitted that this rapid "stamping out" was a distinct triumph for State Medicine, and proves what efficient public health administration can achieve, and, moreover, marks with emphasis the advances that have been made since the former cholera outbreak of 1866, and in this connection I may mention that the International Sanitary Conference, which met at Dresden last autumn and has now

resumed its sittings at Paris, is also a distinct landmark of importance in the history of State Medicine, being the first time for many years that concerted action of this nature has been undertaken by the British and Continental sanitary authorities.

The Bill before Parliament now, which is known as the Parish Councils Bill, will not very much affect sanitary questions, though indirectly it will have an effect on the duties appertaining to Boards of Guardians, whose duties will, if the Bill becomes law, be confined to Poor-law administration solely.

The Infectious Diseases Notification Act of 1889, also marks an important stage in public health development in our time, as the exact localisation of disease, especially of an infectious character, is the very essence of, and is a direct aid to, effective sanitary administration; the very fact of the notification of an infectious disease in a crowded population must have far-reaching and beneficial results. To ensure these results in their entirety, compulsory powers are necessary, and had the Act in the first instance carried with it compulsory clauses, the interests of local public health administration would have been much better served. By this Act, wherever adopted, we are enabled to isolate infectious cases, limit an outbreak of disease, define clearly the areas where illness exists, and thus trace the unsanitary condition and causes by which they are spread amongst a community—all of them vitally important issues, and yet there are some who use every endeavour to discredit and thwart the operation of a measure that in this country is so distinctly indicated. It has been calculated that nearly a quarter of a million of people die annually in Great Britain and Ireland from preventable diseases, and it stands to reason that, if we had the system of compulsory notification and registration of disease strictly administered, the number would be very much diminished. A large percentage of the mortality occurs amongst the labouring classes, whose lives are spent in the midst of the most unsanitary conditions. It is in the surroundings of this class of the population that epidemics of infectious disease have their origin, and no system of notification and disease registration should be considered stringent that would assist in stamping out diseases that cost the State annually so many valuable lives. The *laissez faire* system has had a trial, and the successful administration of this Act will never be attained until compulsory notification becomes the law of the land; in the ensuing session

of Parliament, notice has been given by Mr. A. Thomas, M.P., tending towards the consummation of this object.

In connection with the notification and registration of disease, it is evident that the medical officer of health will, in the future, play a much more important part than hitherto, and we are within a measurable distance of the time when valuable facts and figures will be forthcoming to prove the necessity for a rigorous administration of the Act.

In those countries in which the notification of infectious diseases has been carried out more thoroughly than in England, the results are, as might be expected satisfactory. Thus, at the London meeting of the International Congress of Hygiene, Dr. Hewitt, of Minnesota, remarked that in his own State a Notification Act had been passed at the request of the people, and had been in force for eight years. Before this Act was passed, out of a population of 600,000, there were 1,200 deaths from diphtheria per annum; now the population had more than doubled, while the annual deaths from diphtheria had fallen to 761. Anent this, Dr. Thorne Thorne, in a recent address at the Sanitary Institute, drew attention to the fact that diphtheria had lately considerably increased in Great Britain. In Montreal, again, stringent notification regulations are in force, with the result that "epidemic diseases are becoming rapidly stamped out." The Congress, hearing the objections to the notification system, almost unanimously passed a resolution that "Notification of infectious diseases in all countries should be compulsory."

One of the best systems at present existing for the notification of disease is that which has been established at Zurich as the result of experiments which have been carried on for many years. A Board of Health for the town is established in the office of the police, whose duty is to attend to the sanitation of the town, its water supply, and all questions affecting the health of the inhabitants. To this office all communications concerning health and sanitation must be sent; and prompt action when necessary is immediately taken by the health inspector. Every case of sickness to which a medical man is summoned must be reported by him direct to the Health Bureau on his first visit; if of infectious type, whether mild or virulent, no choice is permitted, his report is compulsory. All medical men are officially supplied with a book of printed forms. Where summoned, the medical man only is required to report; dual

notice to the officials, as in the English Act, is not required. Should a case of infectious disease occur in which the doctor fails to report, he is liable to a penalty of from 10 francs to 100 francs, unless satisfactory evidence is given that the omission was unintentional; on a second omission the penalty may be increased to 200 francs. In every return of puerperal fever the doctor must give the name and address of the nurse in attendance, so that she may be brought under the more immediate regulations provided in such cases. By this means slow or rapid dissemination is immediately traceable. From these reports the central Board of Health issues weekly a most important table, giving the number of new cases occurring in the previous week. A copy of this table is sent to the doctors and members of councils.

The Housing of the Working Classes Act of 1890 has not been availed of as largely as might have been expected; to an extent this might have been anticipated, as far as Ireland was concerned, for our local bodies are not so easily moved to take action in questions that they consider may involve a large outlay. They take, as it were, a long time to develop new ideas, and much prefer to allow matters to remain as they are, or rather as they found them. Boards of Guardians are keenly jealous of their local reputation in this regard, and appear to consider it to be their first duty to economise the expenditure of public moneys, even at the expense of the health of their constituents. Urban sanitary authorities err in the same direction, and are fearful of embarking on any scheme of sanitary reform that may involve them in a conflict with the ratepayers; thus, the Housing of the Working Classes Act remains to an extent inoperative, with the result that the percentage of towns that have availed of its provisions are comparatively small. It seems, however, probable that in the near future, when the benefits of the Act become better known, it will be more generally adopted.

The position taken up by Boards of Guardians as sanitary authorities has been very accurately described by Sir Francis MacCabe, who has had a wide and varied experience as to the manner in which these bodies discharge their public duties. At the Congress held in Dublin, under the auspices of the Sanitary Institute, in 1884, after referring to these bodies as administrators of the Public Health Acts, and after bearing testimony to the readiness that they had evinced to make due

provision for the protection of the public health according to their lights, Sir Francis said:—"There can be no doubt that very imperfect knowledge is possessed by Boards of Guardians on the subject of the economy of Sanitation as a security against disease, suffering, and death. They have never had any precise information placed within their reach respecting the amount of preventable disease, suffering, and death, with consequent loss of wage-earning or productive power, which may be avoided by the provision of suitable drainage and pure water. They have regarded only the direct cost, without taking into account the indirect gain, which I believe would fairly more than counterbalance the much-dreaded taxation."[a]

The condition here described has, to an extent, undergone some improvement, but even yet the sanitary authorities throughout the country take a considerable time to move in any measure of health reform. For instance, the question most vital to all, of a pure water supply, is approached in a lukewarm manner, and in some instances it has taken years to convince some of the largest corporations of the necessity of procuring water from a pure source. At the present time the vast majority of towns in Ireland depend for their water supply upon wells, mostly of a shallow nature, and liable to soil pollution, and although the danger is pointed out that these sources are easily contaminated and dangerous to health, the sanitary authorities evince no keen desire to improve matters. They may be advised, and, mayhap, appear convinced, that one of the very first essentials for the healthy life of any community is an abundant supply of pure water, yet, when it comes to the question of the outlay, they are loth to proceed further, and they postpone its consideration for an indefinite term. The wholesome dread of an outbreak of infectious disease is a potent educator, and it is remarkable how intensely active our urban and rural sanitary authorities become when they realise the possibilities of their being overtaken by some epidemic of infectious disease. A chronic condition of scare would do much to urge on promptly those health reforms so much required in the country.

The State inspection of industries is a branch in which improvements have been much needed, though the inspection of the conditions of health in occupation is still in a rudimentary form amongst us, as evidenced by the fact that there are yet a

[a] On the Water Supply and Drainage of Small Towns in Ireland.

large number of occupations absolutely free from inspection. Women's work, until very recently, was never considered as necessary to be included in the duties of an inspector, and it was only last year that women inspectors were appointed, in two instances, to aid in the administration of the Factory and Workshops Act. There is annually a large sacrifice of human life through accidents, unwholesome trades and occupations, which might to an extent be avoided. In England, of 527,000 persons employed in coal mining, 100,000 are disabled for a longer or shorter period every year, and there are about 1,000 killed. Now, taking this one branch of industry alone, does it not seem probable that a closer system of inspection is necessary, and a more complete and thorough supervision indicated. It has been over and over again pointed out that the number of industrial inspectors is so absolutely inadequate, that they take years to get through a cycle of their duties, the consequence being that certain occupations and trades go absolutely free without inspection for very long periods.

The establishment of County Councils in England has indirectly been an impetus to the advance of State Medicine, and the position of the medical officer of health has improved vastly in consequence. Up to recently there was a large number of towns who had medical officers of health with small salaries, and who were allowed to practise their profession in addition; now an entirely new order of specialists is being appointed, and counties, and portions of counties, are now placed solely under the charge of one official, who is responsible to the County Council for the due administration of the Public Health Acts; he is debarred from practice, and devotes his whole time to the supervision of sanitary affairs. Thus the position of the medical officer of health in the sister country is now very much better than it was some few years since, when he had both public and private interests to consider. The State is now served by an officer specially educated, adequately remunerated, and untrammelled in the discharge of his public duties, and the entire machinery of sanitary administration is improved in consequence. It is possible that in the future a similar reorganisation may obtain in Ireland, and that combination of districts for health purposes may be established; the present administration of the duties of medical officers of health is admittedly weak, and the State, sooner or later, will be necessitated to provide a remedy.

The difficulties in the way of the medical officer of health in Ireland are many; his duties and his interests very frequently lie in direct antagonism to each other, the consequence is that, per misadventure, he is guilty of the offence of indifference, and mayhap negligence, with the result that the State loses directly by the maladministration of its own enactments. To cite an example—the Housing of the Working Classes Act of 1890, an Act passed to amend the Acts relating to Artisans' and Labourers' Dwellings and to the Housing of the Poor, is an enactment in every way calculated to benefit the community at large. Anything that would aid in the abolition of the wretched hovels that abound in such large numbers in our Irish towns, one would imagine, should be largely availed of. But what is the fact? From an unique aggregation of circumstances, hardly any advantage has as yet been taken of this Act, or was formerly taken of the previous enactments that it repealed. One of the initial steps in securing to a town the benefits of this Act must be taken by the medical officer of health. Under Part I., dealing with "unhealthy areas," section 5 ordains:—

(1) An official representation for the purposes of this part of this Act shall mean a representation made to the local authority by the medical officer of health of that authority.

(2) A medical officer of health shall make such representation whenever he sees cause to make the same; and if two or more justices of the peace acting within the district for which he acts as medical officer of health, or twelve or more persons liable to be rated to the local rate, complain to him of the unhealthiness of any area within such district, it shall be the duty of the medical officer of health forthwith to inspect such area, and to make an official representation stating the facts of the case, and whether in his opinion the said area or any part thereof is an unhealthy area or is not an unhealthy area.

Now, it nearly always happens that a considerable percentage of the "unhealthy areas" in our Irish towns are owned by that class of the ratepayers who contrive to get themselves elected to representative positions; their local influence is thrown into the scale against any improvements being carried out, and the medical officer of health is either unwilling or hesitates to take action. The consequence is that the beneficent operations of this and other kindred Acts remain in abeyance, and tacit obstruction and delay are the inevitable result.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Clinical Gynæcology: being a Handbook of Diseases peculiar to Women. By THOMAS MORE MADDEN, M.D., F.R.C.S. Ed. London: Baillière, Tindall & Cox. 1893. 8vo. Pp. 562.

THIS is a well-sized volume—published at a moderate price by Messrs. Baillière, Tindall, & Cox—containing 259 illustrations. It consists of 47 lectures delivered by the author to the students of the Mater Misericordiæ Hospital, and as such is worthy of much praise. Viewed, however, as a full clinical guide to gynæcology it is, to say the least of it, incomplete.

Dr. Madden's great individuality is also stamped on the pages of the work, and thus we find him frequently holding views on pathology, diagnosis, and treatment which differ essentially from those held by far the greater number of modern gynæcologists.

The author at the outstart asserts that he prefers to examine his patients when lying in the left semi-prone position, and believes it to be a more convenient and modest method. He also adheres to this position when performing many of his operations. This plan has now been abandoned in all the leading schools of Europe and America, and we believe rightly so. Undoubtedly, an accurate diagnosis is with greater difficulty arrived at when the patient occupies this position than when she is placed in the dorsal position.

Many of the plates show instruments devised by the author or Mr. A. Duke. Few of these will be found necessary in practice; while many of them do not fulfil the requirements of aseptic surgery, and are therefore to be condemned.

We cannot but think the author will do more harm than good in recommending to young and inexperienced doctors the dilatation of the urethra in the treatment of cystitis. There is no doubt that within the past eighteen months this plan has fallen into great disfavour on account of its liability to leave obstinate, and sometimes intractable, incontinence behind it. On the other hand, an alternative plan also recommended in the book—namely, Emmet's colpo-cystotomy—is, we think, a safe, efficient, and

simple operation, and should without hesitation be performed in all obstinate cases of cystitis.

In the chapter dealing with anteflexions and versions of the uterus we are afforded an opportunity of seeing how antagonistic the views of Dr. Madden are to those most generally accepted now-a-days. Having prefaced his remarks by the statement that the normal position of the uterus is that of slight anteflexion, we are shown in Fig. 129 a misleading diagram of the pelvic viscera, representing the uterus pushed out of its position by a distended bladder; yet this is what Dr. Madden considers the normal position of the organ—slight anteflexion.

The following are given, amongst others, as causes of this abnormality—undue mobility of the organ, impairment of the tonicity of the anterior abdominal walls consequent on pregnancy, tumours growing on the anterior wall, direct violence, such as a fall. We differ from the author in considering any of these as causes, and believe a pathological anteflexion is alone present when the uterus is fixed in that position either by adhesions or a shortened sacro-uterine ligament. The importance of this distinction will be apparent when treatment comes to be considered.

What Schultze has taught us to consider as a normal condition of parts would be condemned as abnormal by Dr. Madden, and treated accordingly. Thus a patient with a mobile and anteflexed uterus must lie, according to the author, persistently in the dorsal position if this condition is to be cured. This position, we may remark, actually increases the anteflexion, as can be easily demonstrated by conducting a bimanual examination with the patient first lying on her side and then on her back.

As further treatment the bladder is to be distended with water. This, of course, will raise a normal uterus into an abnormal position, which position will be maintained so long as the bladder is full and no longer, but we are sceptical of its usefulness where adhesions hold the uterus down.

Neither can we approve the sound being employed for the purpose of raising the uterus, and believe its employment would not only fail in breaking down adhesions, but would also be fraught with the greatest danger.

In the chapter dealing with retro-flexions we find the objectionable plan recommended of placing the patient in the knee-chest position and then replacing the organ by passing one finger into the rectum and another in the vagina. Rectal water-bags and a

worthless repositor are shown in the cuts, and are also, we think unfortunately, advised to be used.

This work, like most other first editions, has, in our opinion, defects; yet still it can bear fair comparison with many other well-known works published at a larger price. Many of the minor operations are excellently described and illustrated by cleverly executed plates. It is no mere compilation, but is the outcome of the experience of a celebrated gynæcologist whose views demanded the closest attention from those differing from him. Dr. More Madden is not afraid to find himself in antagonism to others, but has fearlessly given his opinions regardless of whether they are or are not those most generally held. The book is pleasant reading and will not fail to instruct.

An Introduction to Midwifery. By ARCH. DONALD, M.D., M.R.C.P. London, &c. London: Charles Griffin & Co., Limited.

THIS is a work suitable for midwives, and is the best of its kind we have seen. We do not, however, agree with the author in thinking that students require such books when commencing practice.

Dr. Donald, in our opinion, has made a mistake in not dealing in a fuller manner with the practical complications of midwifery, and the addition of some 20 or 30 pages would have enormously improved the work.

The book, containing as it does a great deal of useful information, would nevertheless quite fail to enable a student to pass even the simplest class examination; nor would he by reading it be able to take an intelligent interest when observing practical manipulations being carried out.

To demonstrate the truth of the above statement we need only give one quotation from the book—on the treatment of *post-partum* hæmorrhage:—

"In all cases in which there is a well-marked discharge of blood in the latter months of pregnancy, the student must at once hand over the case to a qualified medical man. The patient must be put to bed, and not allowed to get up for any purpose whatever. Any movement may dislodge a clot and start fresh bleeding. The room must be kept cool, quiet, and well ventilated.

"When hæmorrhage comes on in the early stage of labour the student may examine to ascertain if the placenta is presenting. If the placenta

is felt, or, in any case, if the bleeding is profuse, a messenger must at once be sent for the doctor. On account of the special liability to septic infection in these cases, more than ordinary attention must be paid to antiseptic precautions."

Could anything, we ask, be more calculated to irritate an intelligent student, or even a midwife, than the above? And this is only a sample taken at random of treatment, quite as insufficiently given in other conditions.

Selected Papers in Gynæcology and Obstetrics. By D. BERRY HART, M.D., F.R.C.P.E., &c. Edinburgh and London: W. & A. K. Johnston. 1893. 8vo. Pp. 239.

THE thanks of the profession are due to Dr. Berry Hart for bringing out this work, and giving in compact form the valuable results of his labour, which previously had been scattered in many different journals throughout the United Kingdom.

The work as it stands consists of 231 pages, and contains 49 illustrations, many of which are original and have appeared for the first time, while others are reproduced from Hart and Barbour's "Atlas of Pelvic Anatomy."

Much praise must be accorded to the publishers, Messrs. W. and A. K. Johnston, Edinburgh, for the highly artistic manner in which their part of the work has been carried out. The plates are beautifully executed, and the distinctive letters are so clearly printed that the study of them becomes a pleasure, and not a distracting labour—the result too often of endeavouring to decipher many of our text-book prints.

The book consists in chief part of Special Anatomy, Physiology, and Pathology, and as such, we fear, will not find its way into the hands of many practitioners, for it lacks in great part the practical value which alone can make a book universally popular now-a-days. Nevertheless, we believe that for many years to come it will stand out as the most important contribution to the anatomy of the pelvic organs published in this or any other language.

Dr. Hart has employed five different methods of investigation in order to arrive at the anatomical results which he now gives to the profession at large, viz.:—

1. Ordinary dissections.
2. Dissections after hardening.
3. Sections after freezing.

4. Sections after freezing, followed by fixation in plaster and careful dissections.

5. Microscopical sections of the fœtus.

To illustrate how fallible the first and most usual method is we read:—"Thus in a well-known anatomical text-book (Gray's, 7th edition), deservedly popular amongst students, there are at least six errors in the drawing of the sagittal section of the female pelvis, and in the drawing of the external genitals, three."

No doubt is thrown on the accuracy of the results obtained by the frozen sections, and the method of fixing the parts in plaster is the one especially approved of by Dr. Hart.

On the other hand, the author believes that the bimanual mapping out of the pelvic organs in the living, as practised by Schultze, is utterly fallacious. The objections he urges against it are that, in the first place, the organs are pushed out of their natural position before they can properly be grasped; and in the second place, he considers its failure to determine the anatomy of the pelvic floor sufficient of itself to condemn it. As regards his first objection we do not at all agree with him that a skilful bimanual examination, and especially under chloroform, must of necessity displace the normal relation of parts.

Fig. 1 is a drawing from a frozen section of a healthy adult woman whose bladder and rectum were found to be naturally empty, and gives, in Dr. Hart's opinion, the most perfect view of the pelvic floor with the uterus and its annexa that he has ever before seen.

The portions of this work which deals with other than anatomical subjects appears to us in many places to be open to criticism. In Chapter VIII. we find an involved definition of the meaning of the word "position" in midwifery, viz.:—"Position is the relation to the upper strait of the pelvis of that portion of the presenting part of the fœtus which should first rotate to the front in the movement of internal rotation." The present nomenclature employed to define the various positions of the fœtus at the commencement of labour is condemned—not without reason—but the author's suggested alterations do not, at all events, err on the side of simplicity. Again, the theory as to the separation of the placenta in the third stage of labour is particularly far-fetched. Shortly stated, it is as follows:—A relaxing uterus will increase the area at the placental site; aspiration by the fœtus of blood contained in the placenta will diminish the size of the latter; and in this way detachment of the placenta must necessarily follow.

We do not believe Dr. Hart's method for supporting the perinæum is sound in theory, and are convinced that in practice many other more efficient plans are forthcoming.

In Chapter XX. the opinion held by many eminent authorities as to the possible growth of the placenta after the death of the fœtus in tubo-peritoneal gestation is vigorously combated by the author. On this subject he writes as follows:—"The primary grafting of villi on the free surface of the peritoneum is a myth, and so with its discredit the dependent myth of the placental growth after fœtal death must disappear."

In conclusion, we would like to call the attention of our leading obstetrical text-book writers to the following passage in the same chapter of this valuable work:—"We now know that there is no primary peritoneal pregnancy—*i.e.*, no case known where the placenta has had the free peritoneal surface as its maternal portion."

Manual of the Diseases peculiar to Women. By JAMES OLIVER, M.D. (Edin.). London: J. & A. Churchill. 1893. 8vo. Pp. 211.

THE dry work of the reviewer has been diversified in the perusal of this book, and he has no hesitation in stating that, as an amusing production, it will compare favourably with many of our comic weeklies.

The author, in his Preface, states that, "after prolonged study, he has produced the work," and adds that "as little superfluous matter as possible is introduced." He accordingly proceeds to let us know the chief methods employed in the rearing of prize poultry, and the gestation periods of many animals—the python, cow, sheep, pig, dog, cat, &c.

A chapter is devoted to the evidence of a uterine nerve centre in the medulla oblongata. The methods of physical diagnosis in gynæcology, on the other hand, are dismissed in 48 lines.

Abortion, hydatid mole, hydramnios, and many other conditions of the pregnant woman, are treated of as gynæcological complaints.

The author confesses himself unable to diagnosticate endometritis, but recommends, nevertheless, as treatment that hot vaginal douches should be used, and quite ignores the existence of any treatment which has for its object the cure of the disease by direct applications to the membrane itself.

It is not, however, until we reach Chapter XX. that we are

fully able to appreciate the value of the work before us, and we cannot do better than give our readers some extracts from the chapter and allow them to form their own conclusions. As regards the position of the uterus we read:—"Its attitude is erect, and this position is maintained in consequence of some inherent qualities of the uterus itself. . . . By virtue of these physico-chemical properties the influence of gravitation and other incident forces is counteracted. . . . The habit of the uterus to maintain the erect position may be changed in consequence of some alteration in the physico-chemical qualities of those tissues on which this character depends. Trees, we know, which have always grown erect may, when transferred to some new soil or climate—and even in some rare cases independently of translation—become recumbent." The author then goes on to state his opinion that a deficiency of water in the uterine tissues is one of the chief causes of displacement, and mentions what he considers an analogous condition in botany:—"If we cut a flower, but do not place the cut end in water, the stalk soon becomes flaccid and the flower droops."

Amongst other practical information at the disposal of the readers of this book, we are informed that in "the Fritillaria imperialis the flowers are pendent, whilst the fruit is erect;" and that "the awn of the seed capsules of Erodium gruinum becomes twisted into a spiral at its lower end when the fruit dries."

Having touched lightly on physics, the author proceeds with all solemnity to make the following remark:—"It is now generally admitted that plants and animals are not only reproduced from cells, but that they consist of cells."

Our readers will, doubtless, not be surprised to hear that the writer of the above extracts condemns pessaries in no unmeasured language. "It is impossible to see how they can affect the configuration or position of the uterus except in a few rare cases, and in such only on a tension theory;" and again, "In fact this method of treating flexions and versions of the uterus is not rational, and will not long be tolerated." As an alternative, he mentions, as a means of raising the displaced uterus, "If version is due to want of tone an attempt should be made to restore such by the administration of blood, nerve, and general tonics. . . . Sometimes a lime salt, like chloride of calcium, will prove beneficial."

We hope that our readers have obtained, by the perusal of

these few passages, some idea of the usefulness of this work; and, in conclusion, we would strongly recommend the author to bring out a new and revised edition which might lack in originality what it gained in views more in accordance with those held by the modern general practitioner, for whose education he is so particularly solicitous.

An American Text-Book of Surgery for Practitioners and Students. Edited by WILLIAM W. KEEN, M.D., LL.D., and J. WILLIAM WHITE, M.D., Ph.D. Profusely Illustrated. Philadelphia: W. B. Saunders. 1892. Pp. 1209.

No higher compliment can, we think, be paid to a book than holding it over for a lengthened period for review. It is easy to eliminate the chaff and the dross; it takes longer to weigh the value of the fertile grain and the golden metal. Hence it is that the estimate we have formed of this American Text-book of Surgery is one that has been tried in the crucible of experience, and has stood the test of time. The work is the production of thirteen American surgeons who are associated with the editors-in-chief, whose names we have given above; but as we are told in the preface—"The entire book has been submitted in proof-sheets to all of the authors for mutual criticism and revision." And it is added—"As a whole, the book may, therefore, be said to express upon important surgical topics the consensus of opinion of the surgeons who have joined in its preparation, although it must be understood that, while it thus represents in general the views of all the authors, each individual author is free from absolute responsibility for any particular statement." The result is a work that is singularly uniform—a due proportion being everywhere observed between the relative branches of surgery; but, on the other hand, a great deal has been lost. We miss that dogmatism of teaching in special subjects which either carries immediate conviction with it, or rouses the reader to investigate the subject for himself; we find a temporising tendency throughout, so that the book neither represents the classical limitations of surgery, nor yet puts before the student, in their staring nakedness, the iconoclastic tendencies of modern times. An excellent introduction deals with the subject of surgical bacteriology, which is illustrated by numerous excellent plates and drawings of the more usual forms of bacteria; a subject further carried out in the

chapter dealing with the traumatic fevers, and suppuration and abscess. The section dealing with diseases of bone is remarkably good as far as it goes, and is illustrated with some admirable plates of bone diseases; but a subject of such importance demands more adequate treatment in a book which lays any claim to the title of text-book of surgery. No mention whatever is made of *osteitis deformans* (Paget's disease), of the bone changes in *leontiasis ossea*, or in *acromegaly*—a fact more remarkable considering the fondness of our transatlantic brethren for the products of the continental schools of medicine and surgery. The chapter dealing with abdominal lesions is full and admirable in every respect. Nor is this to be wondered at when we find the name of Nicholas Senn amongst the contributors. The only omissions we have noticed are a few of the more recent procedures—justly omitted in such a work, as not having been sufficiently tried by the time-test to merit their introduction as recognised surgical operations.

The daily increasing importance of brain surgery is here fully recognised. The various conditions requiring surgical intervention are adequately discussed, and numerous plates and diagrams illustrate the important points to be observed in the accurate differentiation and localisation of intra-cranial lesions. Considering the amount of work that has been done in America in this field of surgery, it is not to be wondered that a large amount of space is devoted to its consideration in this volume.

The very important subject of hernia is adequately dealt with in Chapter VI., which deals with diseases and injuries of the abdomen, and we have no hesitation in saying that it is one of the best, if not the best, of the many articles which have appeared on this subject during recent years. No surgical region has shown such marked advance in operative treatment, and the surgeon will find here a faithful reflex of the best that is thought and known in this special branch of general surgery.

The chapters dealing with the surgery of the eye and the ear are quite inadequate to the subject, and we agree with the opinion of those who hold that such specialised subjects should be totally omitted from text-books of modern surgery. If specialism has any claim to a separate existence at all, we think it must be in relation to these special sense-organs.

Book IV. professes to deal with operative surgery in the space of 113 pages. When we add that in this cribbed and cabined space minor surgery and also bandaging are dealt with, it is need-

less to say the space is overcrowded. In justice it must be said, however, that many of the operations of surgery are dealt with under special headings, so that the disproportion between theoretical and operative surgery is not so great as is at first sight apparent. This section is illustrated with reproductions of Maclise's celebrated drawings, which will doubtless prove of help to those who, having forgotten their practical anatomy, are compelled to have recourse to drawings for information on the relations of arteries.

To sum up, we consider the book one of the best general treatises on up-to-date surgery it has ever been our good fortune to come across. There is throughout a wholesome avoidance of that pitfall both to student and teacher—the bowing of the knee to the Baal of authority; and it is this very independence of thought and writing that makes us welcome and recommend a book which is in itself intrinsically good, and is at the same time a true reflex of surgery and surgical practice as adopted by our transatlantic brethren of to-day.

The Art of Living in Australia (*together with three hundred Australian Cookery Recipes and Accessory Kitchen Information*, by Mrs. H. WICKEN, Lecturer on Cookery to the Technical College, Sydney). By PHILIP E. MUSKETT, late Surgeon to the Sydney Hospital; formerly Surgeon Superintendent to the New South Wales Government; Medical Superintendent, Quarantine Station, Sydney; and Senior Resident Medical Officer, Sydney Hospital. London, &c.: Eyre & Spottiswoode. Pp. 431.

WE feel as perplexed as *Punch's* Cork Militia sentry, when a gorgeous footman passed his box, "Am I to shalute him or no? Is he a giniral or a sarving-man?" Are we to review it or no? Is it a medical work or a cookery-book? Mrs. Wicken's culinary contribution occupies 155 pages of the 405; and on this (Part II.) we confess ourselves incompetent to express an opinion. An expert, however, assures us that the recipes are economical and good.

This culinary part is not, however, so incongruous when it is understood that Mr. Muskett's principal object, in this work, is "to attempt to bring about some improvement in the extraordinary food-habits at present in vogue" in Australia. The Australian

dietary is, he considers, altogether unsuitable to a semi-tropical climate—the consumption of meat and tea being injuriously excessive—

"On the other hand, there has been no real attempt to develop our deep-sea fisheries; market-gardening is deplorably neglected, only a few of the more ordinary varieties being cultivated; salads, which are easily within the reach of every home, are conspicuous by their absence; and Australian wine, which should be the national beverage of every-day life, is at table—almost a curiosity."

The book, then, is intended for popular instruction, not for the profession. Unless this is borne in mind many of its precepts will be suggestive of teaching aged relatives the art of sucking eggs. Popular though it be, however, it contains a considerable amount of information scientifically and professionally interesting. For example, we have a comparison of the climates of the chief cities with those of European, American, and Indian cities, which we subjoin, combining two of Mr. Muskett's tables into one :—

Cities	Mean Annual Temperature	Mean Summer Temperature	Mean Winter Temperature
	°	°	°
Sydney	62·9	70·0	58·7
Melbourne	57·5	64·9	53·8
Adelaide	63·1	72·4	58·4
Brisbane	67·7	75·2	64·3
London	50·8	62·9	39·5
Edinburgh	47·5	58·0	38·0
Dublin	50·0	61·1	40·7
Marseilles	58·3	72·9	45·2
Naples	62·0	74·4	47·6
Messina	65·8	77·2	55·0
New York	53·2	70·9	30·1
San Francisco	56·2	60·0	51·6
New Orleans	69·8	82·0	55·8
Bombay	78·8	82·6	73·8
Calcutta	78·4	83·3	67·8
Madras	82·0	86·4	76·6

It pleases the author to arrange his hygienic subjects under five heads, which form the Alphabetical Pentagon of Health. They

are Ablution, Bedroom Ventilation, Clothing, Diet, Exercise. He indulges in some exstatics about the number FIVE, which an irreverent reader would, we fear, describe as twaddle; the Code Napoleon, for instance, we are gravely reminded, is divided into *five* parts. We may pass over the A, B, C. Under Diet there are some statistical facts of interest.

Australians, it appears, smoke too much. The proportion of smokers in the population is not, perhaps, greater than it is elsewhere; but the average amount of tobacco consumed for each inhabitant is high. The average for the five colonies of Australia proper is nearly 3 lbs.; Queensland consuming 3·53 lbs.; West Australia, 4·11 lbs. The figures given for comparison with other countries are as follows:—Italy, 1·34; United Kingdom, 1·41; France, 2·05; Germany, 3·00; Austria, 3·77; Turkey, 4·37; United States, 4·40; Holland, 6·92. Of course we cannot vouch for the accuracy of these figures, their source and method of preparation not being indicated. They are useful for rough comparison only.

In the consumption of butcher's meat Australia stands higher than any other country in the world. Mr. Muskett says:—

"The amount of meat required for each member of the community every year in New South Wales is 291 lbs.; in Victoria, 275 lbs.; whilst in Queensland, 370 lbs. are called for. On the other hand, in the United Kingdom only 109 lbs. are similarly needed; in the United States of America, 150 lbs.; while the figures for the different European countries show an average of no more than 70 lbs." "The striking features, then, in connexion with the Australian dietary are this extraordinary consumption of meat and the faith which is presumably attached to its food value. It is no exaggeration to say that the vast majority of our people believe implicitly in the necessity for meat at their three daily meals, and not only is this the case in the cooler parts of the year, but it is practised universally during the height of the summer, without being modified in the slightest degree. Thus the student of ethnography is presented with the somewhat curious anomaly of a people living in a summer temperature of 70° or 80° in the shade eating more meat than do the bulk of the inhabitants of Great Britain and Ireland (with their ice and snow) during their winter months. It is one of the characteristics of the Anglo-Saxon race, however, this inability to appreciate the necessity of conforming to new climatic conditions in which their lot may be cast. It will be the same, too, when the British restaurant-keeper begins business in Equatorial Africa."

Another dietetic item, in which the Australians indulge to excess,

is tea.' It is said that the four millions of population consume more tea than all Europe, exclusive of Russia. In the United Kingdom the average consumption per head is 5 lbs., and in the United States, 1·5. Each inhabitant of South Australia requires, on the average, 6·5 lbs.; of Victoria, 7·7; of New South Wales, 7·8; of Queensland, 8·4; of West Australia, 10·6.

The seventy pages which Mr. Muskett devotes to Australian wines will be read with interest. On the wine industry, in his opinion, the prosperity of Australia will ultimately rest. The first vine was planted in 1791; in 1815 the first vineyard was formed by John Macarthur, the same enterprising colonist who introduced the Merino sheep in 1797. The author says:—

"At present, the whole of Australia annually produces only a little more than three million gallons of wine, while the yearly yield of France is 795; of Italy, 798; of Spain, 608; of Hungary, 185; and of Portugal, 132 million gallons . . . . The whole of the five colonies of Australia and Tasmania have altogether no more than 48,099 acres under vine cultivation. The total amount of wine made in the six foregoing colonies for the year ending March 31st, 1892, was only 3,604,262 gallons. The city of Paris itself requires nearly 300,000 gallons of wine daily, so that this single city would consume in twelve *days* all the wine which the whole of Australia takes twelve months to make. So far back as 1875, the production of wine in France alone was 1,844,400,602 gallons. And, lastly, there is just one more fact worth remembering, which is, that the approximate value of the 1890 vintage to France was neary £40,000,000 sterling."

To Australians, to whom this work is dedicated, it will be most useful; while for foreigners, like ourselves, it contains much that is instructive and interesting.

Aids to the Diagnosis and Treatment of Diseases of Children (Medical). By John M'Caw, M.D., L.R.C.P.; Physician to the Belfast Hospital for Sick Children, &c. London: Baillière, Tindall & Cox. 1893. Pp. 181.

We confess we do not like the class of book known as "Aids." We have, however, least aversion for those "Aids" which are intended solely for examination use, which are used only by students, and which cannot do harm to anyone, unless, perchance, to the too confiding student who trusts by their use to pass his examinations. We entertain a strong dislike for those manuals which,

without attempting to be complete, treat of these subjects which may involve the life or death of human beings; and we hold that the practitioner will do more justice both to his patient and to himself, and will in the end get better value for his money if he purchase only high-class and standard works on the different branches of his profession.

Having delivered ourselves of our views concerning "Aids" in general, we must say that Dr. M'Caw's book contains a great deal of information put into a most concise form. It gives a short account of the causation, symptoms, treatment, &c., of all the children's diseases likely to be met with. A number of prescriptions are collected at the end, and are often referred to in the articles on the various diseases. A good deal of attention is paid to diagnosis, and some useful tables on this subject are given.

If every case of disease ran a typical course we might recommend this book; but as the majority of ailments met with in practice do not conform in all respects to the normal type, we recommend our readers to supply themselves with more complete and less dogmatic works.

Surgical Ward Work and Nursing: A Handbook for Junior Students of Medicine and Nurses. By ALEXANDER MILES, M.D., C.M., F.R.C.S. Edin. With one hundred and ninety-nine illustrations. London: The Scientific Press, Limited. 1894.

IN this well-printed and copiously-illustrated octavo of 197 pages an excellent selection of practical information has been prepared for the use of the classes of readers for whom it is intended—the medical students and the nurses of the *fin-de-siècle* period. Both the medical student and the nurse of the present age require to be skilled, in their respective capacities, to a degree which would probably startle the spirits of those of similar callings in the early part of this century if they were now permitted to revisit the scenes of their former labours.

The present volume is divided into four sections, respectively devoted to, "Antiseptic Surgery," "The Use of Rest in Surgery." "Bandaging," and "Surgical Instruments and Appliances." The *raison d'être* of its existence is well expressed by the author in his preface: "At the foot of the ladder of surgical literature there appears to the author to be still a step a-wanting. The junior student and the nurse probationer entering on the duties of the

surgical ward require a guide more minute and detailed than is furnished by any of the excellent works on minor or practical surgery now at their command. In the hope of filling the gap, rather than with a desire to traverse ground already so satisfactorily occupied, this little work is sent out." We entirely agree with the author in his recognition of the vacancy which undoubtedly existed, and we congratulate him on the result of his meritorious effort to fill it. We cordially endorse the quotation given in the preface, that "There is no real elevation of mind in a contempt for little things." The microscopic science of the present day has definitely demonstrated the fact that the universe is made up of "little things," and of nothing else.

There is really an immense amount of practical information given in the pages of this little book. The section on Antiseptic Surgery, which opens the volume, omits very little of real value to either nurse, student, or qualified practitioner. There are a few woodcuts supplied. Those of the microscopic organisms, given in Chap. I., are, we are sorry to be obliged to remark, extremely crude, but sufficiently well in keeping with the modest pretensions of the work. The other illustrations, although roughly prepared, are instructive as well as copious in number. A really enormous amount of attention is given to the operation table and the comforts of the patient's bed, and a very full storehouse of information is supplied on the subjects of Surgical Appliances and Instruments. We cordially recommend the volume to the class of readers for whom it has been prepared.

Hospital Sisters and their Duties. By Eva C. E. Lückes, Matron to the London Hospital. Third Edition. London: The Scientific Press, Limited. 1893.

In this very neatly printed booklet of 204 pages, the Matron of the London Hospital offers to her less experienced juniors the advice which the practice of her important and responsible position has so well qualified her to give. The first ("Introductory") chapter includes twenty-four pages, and contains prefatory hints and instructions to those who are entering upon the necessary training for hospital work. As the authoress truly says, "Women whose greatness and tenderness are rooted in great strength of character, whose perception of the needs of those dependent upon them is quick, and who are thoroughly trustworthy and cheerfully

earnest in all that they undertake—these are the characters best fitted for the care and guidance of others, and they will find in a hospital a splendid opportunity for the exercise of true and noble influences towards useful ends." She has a lofty idea of the duties and position of a "sister," and considers that those who are about to enter on this important vocation should be previously prepared by a high-class mental training. "It is a mistake to suppose that there is no advantage in possessing a thorough education before entering upon hospital work, or to imagine, as some have stated, that any general knowledge previously acquired is thrown away in a life of this kind. . . . . The cultivation of mind, which is one of the best results of a good education, is certainly not of less value to a hospital sister than to women engaged in other work."

Throughout the whole of this little volume the authoress maintains the same sensible tone of advice, and adheres to the same high ideal which she has formed of the profession of the sister, and the moral and educational training which should prepare for it. The text is sub-divided into seven chapters. The second deals with the "Domestic management of Wards; Supervision of Ward-maids." The reader is told that "Everything in the wards, literally from the floor upwards, is the sister's business." "If the sister's mind is a blank on the subject of cooking, how can she see after the patients' diet with any degree of efficiency?" "When a sister takes up the management of a ward, she will do well, unless previously familiar with it, to make no sudden change in any particular." "It is not desirable for wardmaids and members of the nursing staff to be on terms of familiarity." "To encourage others to think and act for themselves, whilst insuring the efficiency of the work for which she is responsible by supplying their defects, is the real object at which a sister should aim." And so on; whilst, in addition to the general advice thus conveyed, the details required in the management of everything connected with a hospital ward are clearly defined and illustrated.

The next chapter deals with the "Relationship of Sisters and their Staff Nurses." Here we have the same high moral and ethical standard maintained, and united throughout with the same judicious attention to every practical detail, which we have seen to characterise the former sections. We do not consider it necessary to enter into more minute particulars. The following portions of the book, which deal with the training of probationers, "New"

and "Advanced," "Relationship of Sisters to their Patients," &c., all preserve the same features.

In conclusion, we can only say that we have nothing but praise for the tone and style of this volume. Every sister must profit by its perusal, and every intending probationer will find in it the sound advice and necessary insight which she should always acquire before attempting to enter on the arduously responsible duties of a most important profession.

On Gout as a Peripheral Neurosis. By Willoughby Francis Wade, F.R.C.P., &c.; Consulting Physician to the General Hospital, Birmingham. London: Simpkin, Marshall, Kent & Co. 1893.

This essay represents much thought and a good deal of investigation of the subject, carried out to a considerable extent by Mr. Wade on his own person. He observed on careful examination that the tenderness over a gouty joint was not uniform; that it often existed in the form of lines, while the skin on either side of this line was quite painless on pressure. In some of the cases described part of this tender line lay in the midst of red and swollen tissues, while the upper portion lay in a part which had not been red, swollen, or tender.

Details are given of these lines of tenderness in several cases of gout in the hands as well as in the feet. When the gout attacks the hypothenar region, extreme tenderness will be found to exist on pressing the wrist just to the radial side of the pisiform bone. When the disease manifests itself in the thumb, pressure on the wrist in the interval between the two extensors of the thumb is acutely painful.

Details are next given of the exact places in the feet where these lines of tenderness are to be found.

If the anatomy of each of these spots be carefully examined, it will be found that in every case the area of tenderness on pressure corresponds to a nerve trunk. There appears, therefore, to be a neuritis in many cases of gout.

Is this neuritis a primary affection, or is it secondary to inflammation of the joint? Mr. Wade favours the former view. He found that in his cases passive movements of the joint surfaces upon themselves—the first phalanx being held firmly between the finger and thumb, and all possible pressure made on the joints—

were absolutely painless. There was no evidence of fluid in the joint. It is impossible, he says, without cutting into it, to obtain stronger evidence that the joint was healthy. In many cases, then, he holds that a gouty neuritis occurs, and that subsequently, whether as a result of trophic or other influence, a gouty arthritis follows.

Mr. Wade's explanation as to why it is that the great toe joint is so much more often affected than any other joint, is interesting: "It cannot be because of its remoteness from the centre of circulation—other joints are equally far removed. Nor can it be because the toe supports so much weight. The great toe shares the weight with the other toes, and the combined area of all the metatarso-phalangeal joints quite equals, if it does not exceed that of the ankle joint—a joint which also bears the whole body-weight. The reason is because the nerves round the great toe joint are not deeply seated in the soft parts. They are subject to pressure on the plantar aspect by the weight of the body, on the inner and upper aspects by the upper leather of the shoes; whereas the nerves of the other toes which are rarely attacked are protected by the soft parts, and are also less pressed upon by the boot leather."

It will require more investigation before we can recognise that neuritis plays such an important part in *all* cases of gout. Mr. Wade's essay is, however, both interesting and instructive, and it shows us that it will be necessary in future to examine with more particular care the local manifestations of gout.

The Narrative of a Busy Life. An Autobiography. By ARTHUR HILL HASSALL, M.D., Lond.; Member of the Royal College of Physicians of London; late Senior Physician to the Royal Free Hospital; Founder of, and Consulting Physician to, the Royal National Hospital for Consumption and Diseases of the Chest. London: Longmans, Green & Co. 1893. 12mo. Pp. 82.

DR. HASSALL'S title-page is characteristic. It is, we venture to say, unquestionable that this versatile and most industrious physician is better known to the profession and to the public as an analytical chemist than as a practitioner. Throughout this highly interesting autobiography, however, his invaluable services in the suppression of adulteration are represented as altogether secondary to his work as a practising physician. We cannot but

think that even the founding of the Hospital for Consumption at Ventnor, due to Dr. Hassall's untiring efforts, was less beneficial to British humanity than his share in the *Lancet's* crusade against adulteration of food and drugs, which occupies so unimportant a share of this account of his life and work, and which is ignored in his title-page.

Ireland may claim a large share of Dr. Hassall. His father anticipated modern medico-military nomenclature, being both surgeon and captain in the Durham Fencibles. The "Fencibles," it will be remembered, were English militia battalions which enjoyed the privilege of serving in Ireland, and were employed in suppressing the insurrection of 1798. In this work some of them showed great zeal, and left behind them an unsavoury reputation. The Durham Fencibles, in particular, saved Ireland, "if not the British Empire," by intercepting the rebels on their march to sack Dublin—an intention on which history had hitherto been silent. The gallant captain was present at Gorey, Arklow, and Vinegar Hill, and in Downpatrick he met his fate. "He was standing on the step of a hotel in Downpatrick when a ladies' school passed; he was struck with the appearance of one of the young ladies, boldly made himself known to the mistress of the school, and after due inquiry and the necessary preliminaries, the lady—a Miss Anne Sherrock—became Mrs. Thomas Hassall." On his return to England he was appointed to the 1st Surrey Militia through the patronage of the Lord Arthur Hill of that day, to which fact our author (the youngest of five children) owes his *prenomina.* His mother's sister was the wife of Mr. Murray, afterwards Sir James Murray and Inspector of Anatomy in Dublin. In 1834 Dr. Hassall became an inmate of his uncle's house in Merrion-square, with a view to studying medicine. He attended the schools of "Peter-street, Digges-street, and Trinity College," Jervis-street and Mercer's Hospitals. In 1839 he passed for the diploma of the London College of Surgeons and settled down in practice.

The untiring industry of Dr. Hassall, and the ability with which he pursued the various bye-subjects to which he devoted himself while following his primary profession as a practising physician, have been most conspicuous.

An appendix contains a list of nearly a hundred papers on scientific subjects, but, as we have already stated, his chief claim upon our admiration and gratitude rests on his investigations into

the Adulteration of Food. In 1850 his attention was drawn to this subject, and coffee was the article which he examined first. "Nearly all the samples were adulterated most extensively in a variety of ways; some consisted of little else than chicory, which was the most frequent adulterant, though in many cases roasted wheat, rye, beans, peas, burnt sugar, &c., were also detected in considerable amounts." Old Indians, acquainted with Sir Charles Woods' merits as Secretary of State for India, will not be surprised to hear that, when he was Chancellor of the Exchequer, he declared in his place in the House of Commons (on the authority of "three of the most distinguished chemists of the day") that "neither by chemistry nor in any other way can the admixture of coffee with chicory be detected." The *Lancet* "Analytical Sanitary Commission" was organised by Dr. Hassall and Mr. Wakley for the systematic examination of foods, &c., with the publication of names and addresses, in full, of the sellers of the substances analysed. The first report appeared in January, 1851, the last in December, 1854; 2,500 samples were examined, including all the principal articles of consumption. The dealers remonstrated—naturally; but Mr. Wakley's courage and public spirit did him no injury. "A few lawyers' letters were received, and in one or two cases actions were commenced, but only went as far as the delivery of the declaration." This fact sufficiently proves the scientific accuracy of Dr. Hassall's work, of which we shall quote one example:—

"A mustard manufacturer sent the *Lancet* a sample of what he described as genuine mustard, an article which, at that date, did not exist; all mustard then manufactured consisting of a mixture of mustard, wheat-flour, and turmeric, the flour greatly predominating in inferior samples. I examined this sample, and in the next number of the *Lancet* the following notice appeared—'Our correspondent is deceived; the article he has sent us is not a specimen of pure brown mustard, as it contains a small quantity of turmeric.' This called forth a rejoinder from the sender, who, acknowledging the correctness of the statement, affirmed that the small addition of turmeric, 1 in 448 parts, was made simply to improve the colour."

In 1854 Dr. Hassall turned his attention to the London water-supply, bringing to the investigation his skill in the use of the microscope—then almost for the first time applied to the examination of water. He also examined microscopically, at this time, the characteristic discharges in cholera, detected "vibriones"

in great abundance, pointed out that the presence of an alkaline fluid was necessary to their development, and thus explained the value of sulphuric acid in checking the diarrhœa of the disease. In this investigation he *almost* anticipated Koch's discovery of the specific bacillus of cholera. "From the characters exhibited," he says, ". . . and from their general agreement with Koch's description, there is not the smallest doubt that the cholera bacillus was present in the discharges in nearly every case, and was first seen by me during the cholera epidemic of 1854."

We have already referred to the list of Dr. Hassall's papers, &c., published from 1840 to 1893, which is subjoined to his "Narrative." There are besides, in an appendix, three valuable papers—"On the Colour of the Leaves of Plants and their Autumnal Changes," "On the Colouration of the Leaves of Plants," and "On the Climate of San Remo, based on the Meteorological Observations of Eleven Consecutive Seasons." The book is somewhat carelessly printed, but this is a trifling drawback to a record of hard and varied work, carried on for half a century, with immense benefit to professional and general scientific knowledge. We have indicated only two or three of the many subjects with which Dr. Hassall deals in his autobiography. We shall be glad if we have induced our readers to read a most interesting work for themselves. The author is still with us, and long may he remain with us.

BRITISH MEDICAL SERVICE.

THE following is the official list of Surgeons on probation of the Medical Staff of the British Army who were successful at both the London and Netley Examinations. The prizes are awarded for marks gained in the special subjects taught at the Army Medical School. The final positions of these gentlemen are determined by the marks gained in London added to those gained at Netley, and the combined numbers are accordingly shown in the list which follows:—

January 31st, 1894.

	Combined Marks		Combined Marks
1. Prynne, H. V.	4,736	7. Cameron, K. M.	3,980
2. Master, A. E.	4,635	8. Fleury, C. M.	3,717
3. Dansey, Browning G.	4,327	9. Fox, A. E.	3,657
4. Clark, E. S.	4,073	10. Green, S. F.	3,628
5. Barnett, K. B.	4,051	11. Tibbits, W.	3,485
6. Boyle, M.	4,015		

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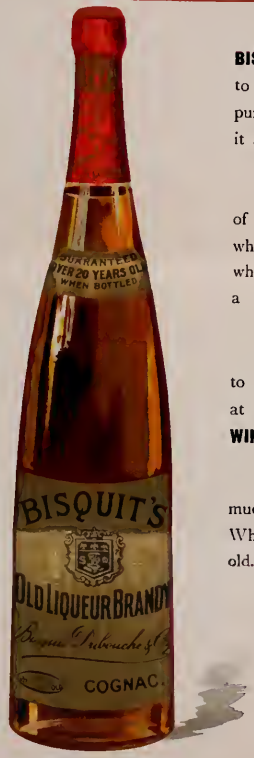

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PART III.

SPECIAL REPORTS.

REPORT ON

MATERIA MEDICA AND THERAPEUTICS.[a]

By Walter G. Smith, M.D.; President of the Royal College of Physicians of Ireland; Professor of Materia Medica, School of Physic in Ireland, Trin. Coll. Dubl.; Physician to Sir P. Dun's Hospital.

Among the new comers to the ranks of therapeutics furnished by organic chemistry during the past year, we do not find many whose claims demand serious attention. The incessant clamouring for new drugs is to be deprecated, and fortunately there seems to have been a healthier tendency of late to study more carefullly the qualities, for good or for evil, of some of the claimants which have been brought before us within recent times.

In reference to older drugs, one of the best contributions that has been made of late to rational therapeutics is contained in Dr. Stockman's paper on the Treatment of Chlorosis by Iron and some other Drugs.—(*Brit. Med. Journal*, April 29, May 6, 1893.)

A most interesting topic, and one upon which our knowledge is sadly deficient, is the investigation of the connection between the chemical constitution and physiological action of remedies. It is true that already we have some clues, and in the class of neurotic remedies especially we hope for increasing light in this direction. May we not look forward to apprehending more clearly *how* certain good and desirable effects are linked to chemical structure, and *how* certain ill effects may be accounted for or guarded against?

Nencki and Boutmy (*Arch. f. exp. Path. u. Pharm.*, 1892) have studied a special case of this relationship, and they have shown that certain poisonous "aromatic" compounds become relatively

[a] This Report is based upon an article by the writer in the "Year-Book of Treatment" for 1894.

non-toxic when we introduce into their molecule the carboxyl (COOH) group, which is saturated with oxygen, and is not reducible in the organism. Similarly with the sulphonic group. As striking examples we may point to the energetic poisonous qualities of phenol (carbolic acid) as compared with its carboxyl derivative, salicylic acid. Or again, pyrogallol (pyrogallic acid) is a highly toxic substance, whereas its carbonic acid—viz., gallic acid—is non-poisonous, and has neither antipyretic nor antiseptic action.

The substitution of the amide (NH_2) group for H does not have a similar effect; witness phenocoll, which is the amide of phenacetin.

But, although we do know the chemical constitution of a good many important drugs, we cannot yet go very far, and we may well take to heart the criticisms, if we do not entirely adopt the conclusions, of Eichengrün, who recently gave an address upon this subject to the Chemical Society of Aix-la-Chapelle. Antipyrin and antifebrin, which are chemically slightly related, produce similar effects upon the animal organism; while, on the other hand, bodies of closely related chemical constitution are sometimes very different in their physiological action. Moreover, slight chemical alterations—*e.g.*, homologues, substitutions, &c.—are accompanied by very considerable differences in physiological action. No doubt, in inorganic chemistry the action of all compounds of the same metal (K, Hg, Fe, Zn) is essentially similar one with another. But in the living organism, and with complex drugs, we must take into account all the determining conditions. For example, physical properties—*e.g.*, solubility; and the disturbing chemical action upon the drug of various substances in the organism—*e.g.*, albumen. Sometimes compounds, capable of resisting in a high degree chemical influences outside the organism, readily break up under the influence of vital processes, and *vice versâ*.—(*Pharm. Journal*, July 1, 1893.)

In studying the physiological action of chemicals we ought first to be sure of their identity, purity, and liability to change. This is often a difficult question in the case of the many complex synthetic products which have invaded us, and for whose purity we are obliged to rely upon the reputation of the firm which produces them.

In the simpler case of chloroform we note with satisfaction the inquiries as to the existence of impurities in it, and as to the

possible effect of these upon its physiological action. It is reassuring to know that the amount of these impurities is very small, and does not seriously affect the administration of chloroform for anæsthesia.

It has also been conclusively proved that absolutely pure chloroform quickly (within one or two hours) spoils by exposure to light in presence of oxygen, whereas the addition of a minute proportion of alcohol—1 per cent. or less—has, as Squibb first showed forty years ago, a marked effect in retarding injurious change, and in rendering the deleterious products innocuous. Spoiled chloroform is liable to contain HCl, free Cl, and carbon oxychloride, $COCl_2$ (phosgene gas).—(*Pharm. Journal*, March 25, June 10, 1893.)

ANTISEPTICS, ANTIPYRETICS, ANALGESICS.

The "fever" of demand for new antipyretics has apparently cooled down under the free exhibition of them to which the profession and the public have been subjected; and the ardour of clinical experimentation has been further abated by the discovery of the dangerous qualities which many of these drugs were found to possess.

Thus Schmitt has ascertained that all the aromatic drugs used as antithermic remedies produce, in variable degree, changes in the blood, consisting in the conversion of oxy-hæmoglobin into methæmoglobin, a diminution of the "respiratory capacity" of the blood, and even destruction of the red corpuscles. These changes vary in intensity with the nature and dose of the drug studied, but for each drug are directly proportional to the degree of reduction of temperature produced. They may be roughly divided into the following groups: (1) Those which, with a medium dose only, fix the oxygen more firmly to the hæmoglobin—antipyrin, phenacetin. (2) Those which in moderate doses produce simple intracorpuscular methæmoglobinæmia—anisic acid, thallin, antithermin, kairin, exalgin, methacetin, acetylanidophenol. (3) Those which in moderate doses, especially if repeated a few times, produce methæmoglobinæmia with destruction of corpuscles—acetanilide, benzanilide, formanilide, methylformanilide, pyrodin.—(*Brit. Med. Journal* [Epitome], Oct. 15, 1893.)

But the thirst for new antiseptics is not yet assuaged, and a crowd of new compounds, or modifications of older ones, has been put forward. With many of these the time is too short or the evidence too slender to justify more than the briefest mention.

Thiocamf.—The use of sulphurous acid (SO_2) as a disinfectant has been long known, and G. F. Duffey invites attention to a liquid termed Thiocamf, which has been patented by Professor Emerson Reynolds. It is a compound of SO_2 gas with camphor and other substances. A six-ounce bottle of thiocamf will give off about 1,250 c.i. of SO_2 gas when exposed to the air.—(*Dubl. Journ. of Med. Sci.*, May, 1893.)

PHENOLIC COMPOUNDS.

Creolin has not gained much in popularity during the past year, but some surgeons will prefer it as an antiseptic.

Lysol has been largely used abroad. It is readily soluble, fairly active, and very cheap. I have seen the urine become dark red after irrigation of an operation wound (renal abscess) with lysol.

Saprol is a cheap new disinfectant for hygienic purposes. It is a dark-brown oily liquid, and is composed of crude cresols dissolved in excess of petroleum hydrocarbons. Hence it is inflammable—a serious drawback—and it is not adapted for surgical practice.

Solutol is an *alkaline* solution of cresols, and not so well suited for surgical dressings.

Solveol is a *neutral* cresylic liquid, soluble in water in all proportions, and devoid of the greasiness which creolin and lysol exhibit. For surgical dressings a $\frac{1}{2}$ per cent. solution is used.—(Squibb, *Ephemeris.*)

Guaiacol, the chief constituent of beech-wood creasote, has been in considerable demand, and appears to be of undoubted service in the treatment of pulmonary tuberculosis. The benzoate, salicylate, iodide, and carbonate, especially the latter, have all found their use in individual practice (Squibb, *Ephemeris*). The results obtained in the treatment of pulmonary phthisis by hypodermic injections of guaiacol and iodoform, in combination and separately, are not encouraging, and this method does not seem promising.—(*Brit. Med. Journal* [Epitome], Jan. 28, 1893, from *Gazz. degli Osp.*)

Naphthol.—The form known as β-naphthol has been in use, both internally and externally, for more than a decade. Within the last year or two its isomer, α-naphthol, has also been recommended as an antiseptic. It is stated to be more soluble and more efficient than β-naphthol, and is less poisonous, but more irritant locally.

Asaprol (not to be confounded with saprol) is the calcium salt of sulphonic β-naphthol. It is a white powder, very soluble in cold water. Incompatible with alkaline iodides, sulphites, and most alkaline salts, Stackler and Dubief report favourably of it in influenza, acute rheumatism, tonsillitis, and some other affections. Dose, 2 grammes the first day, and increased gradually up to 6 grammes, to be again reduced when the temperature is lowered. It is well tolerated by the organism, and is borne when sodium salicylate cannot be taken.—*Brit. Med. Journal* [Epitome], Nov. 19, 1892, from *Bull. Gén. de Thér.*)

Resorcin—a diatomic phenol—has steadily increased in favour, and has given excellent results in the treatment of diarrhœa of children, in the various forms of gastritis, and in gastric ulcer. As a local germicide and stimulant it is very efficient in tubercular and other forms of ulceration, and in pharyngitis and chronic rhinitis.—(Squibb, *Ephemeris.*)

SALICYLIC DERIVATIVES.

Agathin, a new compound of salicyl aldehyde with α-methyl-phenylhydrazin. Recommended by Rosenbaum in neuralgia and rheumatic affections. Dose, 5-10 grains, two or three times a day.—(*Ther. Monatsh.*, Jan., 1893.)

Malakin, a salicylic derivative of β-phenetidin. Given by Jaquet in 74 cases, and found to be valuable as an anti-rheumatic and antipyretic. Dose, 0·5-1 gramme, in wafers. Acts slowly and gradually.—(*Ther. Monatsh.*, Oct., 1893.)

Salophen has attracted some attention as a substitute for salol. It is acetyl-amido-salol.

In acute rheumatism it has been found useful by several observers (Flint, Hare, Koch, Caminer, Guttmann), and is to be preferred to the salicylates as being tasteless, unirritating, and free from depressing effects. Dose, 3-5 grammes a day, in powder. Also used in neuralgia and sciatica (Lutze). Decomposed by the pancreatic juice into salicylic acid and acetyl-amido-phenol. It is rather costly.—(*Ther. Monatsh.*, Oct., 1892; July, 1893.)

Salol has gained ground, and has proved itself an efficient antiseptic. E. Mansel Sympson advocates its use in some abdominal affections. For example, in "bilious" flatulence attended with pain, he gives 4-5 grains of calomel, followed in one or two hours by 10 grains of salol, repeated every four hours, and finds this plan to act like a charm. He likewise finds salol very valuable in

acute diarrhœa, and in enteric fever for deodorising the evacuations.—(*Practitioner*, Aug., 1893.)

BASIC COMPOUNDS.

Analgen (Spiegelberg, *Münch. med. Wochen.*) is a synthetical derivative of quinolin, and enjoys a portentously long chemical name and formula which it is unnecessary to reproduce. It is represented to be a safe and efficient drug, similar in action to antipyrin, and a number of medical men have tried it in Germany with encouraging results. It is supplied in 7-grain tablets, and in elegant wafer cachets, each containing 7 grains. The maximum dose is 45 grains daily.

Phenocoll, an ally of phenacetin, has received increasing attention during the past year. It promises best in rheumatic and neuralgic affections.

Antipyrin has been partially pushed aside by the introduction of several of its derivatives or allies which possess similar, and perhaps superior, properties. Toxic cases from its use have been numerous—*e.g.*, Guttmann reports a case in which the resultant symptoms resembled those of algid cholera.—(*Brit. Med. Journal* [Epitome], May 6, 1893).

Formanilid.—Bókai states (*Cent. f. d. med. Wiss.*, No. 17, 1893) that Tauszk was led to test the value of formanilid in a number of clinical cases. The general conclusion was that formanilid is less liable than antifebrin to produce dangerous symptoms, is at least equally effective in neuralgia, and is superior to it as an antipyretic. Given to patients suffering from intercostal neuralgia, hemicrania, cerebral tumour, syphilis, lead colic, tabes dorsalis, coxitis, lumbago, myelitis, and cholelithiasis, it was found to be not inferior as an analgesic to antipyrin or antifebrin. It brought about sleep indirectly by stilling pain. The maximum dose given was 7½ grains a day. Its antipyretic power was tested in perityphlitis, empyema, acute rheumatism, malaria, pulmonary tuberculosis, pneumothorax, and typhoid fever. After a dose of 1½ gr. the temperature began to fall in about five minutes. With a dose of 4 grs. the fall of temperature averaged 4° F., the maximum being 6·5°, and the minimum 0·7°. In administering the drug it is advisable, if the temperature is below 102°, to begin with doses of 2½ grs.; if over 102°, with doses of 4 grs., and to repeat the dose two or three times a day. An advantage attending the use of formanilid is that the fall of temperature to the normal

is not accompanied by much sweating or shivering.—(*Brit. Med. Journ.* [Epit.], May 20, 1893.)

LOCAL REMEDIES.

Alumnol is the aluminium salt of naphthol-sulphonic acid, which contains 15 per cent. of sulphur. Chotzen (*Berl. klin. Woch.*, No. 48, 1892) has investigated its therapeutic action. It is a fine white powder, very soluble in water, in glycerine, and in warm alcohol. It is insoluble in ether. Heinz and Liebrecht have already reported on its physiological action, and have shown it to be a harmless, odourless, and antiseptic astringent. The author has used it in more than 300 cases. It was found curative when applied pure to soft chancres and abscesses mixed in the proportion of 10 to 20 per cent.; with inert powders in balanitis, erosions, moist eczemas, &c. One to 5 per cent. solutions were used in moist and papular eczemas, acne of the face, boils, and urethritis. Two and a half to 10 per cent. solution in alcohol was used for the treatment of eczema, urticaria, sycosis, favus, psoriasis of the head and face; and $2\frac{1}{2}$, 5, 10, and 20 per cent. lanolin ointment for eczema, seborrhœa capitis, psoriasis, and favus. Alumnol varnishes were used in papular and squamous eczemas.

Gallanol is the anilid of gallic acid, and is prepared by boiling tannic or gallic acid with anilin. It forms colourless crystals with a bitter taste, sparingly soluble in cold water, readily soluble in boiling water and in alcohol. It has reducing and anti-fermentative properties, and Cazeneuve and Rollet recommend it as a non-toxic substitute for chrysarobin and pyrogallol in the treatment of psoriasis and eczema. Since it does not irritate, and does not discolour the skin, it may be safely used upon the face, head, and neck.

Forms of administration:—As ointment, in proportion of 0·5—3 parts in 30; or in traumaticin solution.—(*Ther. Monatsh.*, Sept., 1893.)

Scopolamin is an alkaloid which occurs in the root of Scopolia atropoides and other Solanaceæ, and is isomeric with cocaïn. According to Schmidt the hyoscin of commerce is really scopolamin. Rählmann recommends it as a valuable mydriatic, superior to atropin in activity, and less liable to cause inconvenience. It may be used in solution, 1 to 2 parts per 1,000 ($\frac{1}{10}$ to $\frac{1}{5}$ per cent.).—(*Ther. Monatsh.*, May, 1893.)

Illig's observations confirm those of Rählmann, and he points out

that scopolamin is especially serviceable in those cases of inflammatory mischief in the eye where atropin is contra-indicated.—(*Ther. Monatsh.*, Oct., 1893.)

Diuretin is an unstable compound and an expensive one, and although still sometimes prescribed, it does not appear to bear out the favourable results at first claimed for it. It seems to act best in dropsy due to valvular disease of the heart, and has succeeded where digitalis failed.—(Aldabelle, Herrick, *Journ. Amer. Med. Assoc.*)

Caffeïn-sulphonic acid, a cheaper competitor of diuretin, has been introduced by Heinz and Liebrecht. It is said to be a specific stimulant to the renal epithelium, and to be without effect upon the blood-pressure. The average dose is from 4 to 6 grammes per day of the sodium, strontium, or lithium salt.—(*Ther. Monatsh.*, Oct., 1893.)

Dermatol has not supplanted iodoform, but finds its use as a desiccating and healing power. Shaniavsky finds it very satisfactory in purulent otitis.—(*Brit. Med. Journal* [Epitome], Dec. 31, 1892.)

Emol is a soft impalpable powder—a kind of improved Fuller's earth, and is recommended by W. Allan Jamieson.—(*Brit. Med. Journal*, Aug. 26, 1893.)

Europhen—one of the most effective substitutes for iodoform—has been largely used in throat and nose affections, in spreading ulcers, and in soft sores. Like iodoform, its germicidal power is feeble.—(Christman, *Centralbl. f. Bakter. u. Parasit.*)

Ichthyol and *Thiol*.—Thiol, which is a sort of artificial ichthyol devoid of unpleasant smell has been favourably reported on by several writers during the past year, and is mainly employed in gynæcology and dermatology. Radcliffe Crocker prefers it to ichthyol. It is unirritating, and the stains produced upon linen are easily removed.

The literature of ichthyol is still abundant, and a few references may be noted. In gynæcology, H. Schultz, of Budapest, thinks very highly of ichthyol as a means of promoting absorption of inflammatory products and diminishing pain. He employs it mixed with glycerine (10 to 15 per cent.), or in ointment, with vaseline or lanolin (10 per cent.).—(*Orvosi hetilap.*, 1892.)

Polacco (*Internat. klin. Rundschau*, 1892), of Milan, is enthusiastic in its favour. After an experience of nearly 1,000 cases he considers ichthyol one of the most important gains to gynæcological

therapeutics. He uses tampons of 10 per cent. ichthyol-glycerin. Ullmann (*Arztl. Centr.*, Aug., 1893) extols ichthyol as an excellent absorbent and analgesic in affections of the skin and genital tract. Dockrell (*Med. Press and Circ.*, 1892) considers ichthyol to be of the greatest value in all inflammations of the skin.

Many authors (Neisser, Ehrmann, Jadassohn, Manganotti) testify to its value (1 per cent. solution) in the treatment of gonorrhœa.

Freudenberg praises the use of ichthyol suppositories (3 grs. to 10 grs. in each) in sub-acute and chronic prostatitis. He generally prescribes two a day—one in the morning after defecation, the other at bed time.—(*Sonder-Abdr. Centralbl. f. klin. Med.*, 1893.)

HYPNOTICS.

Nothing very striking in this sphere of action has been published.

Sulphonal holds its own firmly, and has lost few of its enthusiastic advocates. In asylums for the insane it is now largely in use, and appears to be of special value in acute melancholia. It is folly to claim, as some feel disposed to do, that it is void of disagreeable results. One can hardly fail noticing untoward effects, especially in cases where much physical prostration is present. It has been stated that it is looked upon with such suspicion in Turkey that it has been interdicted throughout the Empire by Imperial decree.

Surely, caution should still be studiously observed in its use, and the more so as its more frequent employment would tend naturally to render us quite oblivious to its drawbacks and peculiarities. Fatal cases are still being reported, but they are not by any means in proportion to the increased number of successful ones.—(Squibb, *Ephemeris.*)

After the exhibition of sulphonal, a red pigment, hæmatoporphyrin, sometimes appears in the urine. This is a threatening symptom.—(Quincke, Schäffer, *Ther. Monatsh.*, June, 1893.)

Gonzales advocates the use of sulphonal in conjunction with morphin as a safe and very efficient combination (*Brit. Med. Journal* [Epitome], Sept. 2, 1893). Kast (*Arch. f. exp. Path. u. Pharm.*, 31, i.), from a study of the published cases in which poisonous effects have followed the use of sulphonal for a prolonged period, gives the following as characteristics of the condition of chronic poisoning by the drug:—(1) Disturbances of digestion, as vomiting, diarrhœa, or constipation; (2) of the nervous system,

as ataxy and feebleness of the limbs often share in the pathological process—the most frequent accompaniment is muscular wasting, without disturbance of sensation or reflex action, and without the reaction of degeneration; (3) the atrophy and paralysis are not in relation to the duration or extent of the arthritic affection; (4) less frequently the atrophy is the result of an involvement of the nerves; (5) a quite satisfactory explanation cannot yet be given of this atrophy, but several factors may produce it; and (6) the prognosis is good, electrical and mechanical treatment being very useful, whereas anti-rheumatic remedies are without effect.—(*Brit. Med. Journal* [Epitome], Feb. 11, 1893.)

Trional and *Tetronal* are so called because they contain in their molecules respectively three and four ethyl groups. Common sulphonal contains only two ethyl groups, and might, therefore, be fitly called dional. They are all members of the organic class termed sulphones, and include the radical SO_2. All observers agree that both trional and tetronal are valuable and efficient hypnotics, and closely resemble sulphonal in action. Most of the observations during the past year refer to trional. The general impression left upon our mind is that they are useful substitutes for sulphonal, and sometimes succeed where it has failed (Raimondi, Mariottini). In practice we often find, and especially in the domain of neurotic remedies, that it is of great advantage to have the command of several remedies of the same class whereby we can successfully cope with the ever-varying conditions we meet with in our patients. Trional and tetronal act more quickly (half an hour) than sulphonal, and the sleep is not so enduring. Koppers (*Sep.-Abdr. aus der int. klin. Rundsch.*, 1893) places trional above sulphonal, chloralamid, and chloral, and points out that it is also valuable in diminishing night sweats. Boettiger (*Brit. Med. Journ.* [Epit.], Nov. 5, 1892), from an experience of 75 cases, essentially confirms the above opinion. The average dose of trional, for a man, is 1–2 grm., and it is administered in the same way as sulphonal. Beyer finds trional very useful in mental cases (*Sonder-Abd. aus dem Arch. f. Psych*). Randa also endorses its value, and found trional to act admirably in three cases where chloral failed.—(*Sep.-Abdr. aus der intern. klin. Rundsch.*, 1893.)

Chloralamid (Chloral Formamid) continues to be used in about the same line of affections as a year ago, but its employment has become more general. Its purely hypnotic effects are still pronounced, and well recognised in the same class of cases as before

noted. Its more extended use shows that it has a much larger range of usefulness than its rivals, chloral, paraldehyde or sulphonal. Its marked characteristics, which are being more recognised and taken advantage of every day—first, of not requiring an increased dose after continued use; and second, of definitely establishing the *habit* of sleeping by its systematic use, so that the habit is well kept up after administration has been discontinued, are inestimable qualifications.

During the past year it has been found especially valuable in cardiac asthma, and renewed claims for its superiority in sea-sickness have been prominent, although not by any means conclusive.

It is true that there have been some disappointing results reported this year as well as last, but they are comparatively few, and we may very safely say in general that in chloralamid we continue to have a safe and reasonably reliable hypnotic.—(Squibb, *Ephemeris.*)

Chloralose ($C_8H_{11}ClO_6$), a new hypnotic, seems worthy of being carefully tested. The smallness of the dose—*viz.*, *three or four grains*—as a hypnotic is remarkable. It is given in water, capsules, or in pills. In water its taste is readily masked by peppermint.

Euphorin—i.e., phenyl-urethane—has been reported upon by a number of writers. G. Cao (*Rif. Med.*, Nov. 18, 19, and 21, 1892) has collected the results obtained by various observers with euphorin, and has added some observed by himself. He thinks euphorin is destined to play an important part in therapeutics by its efficacy in a great variety of conditions, from its rapid action, and its freedom from unpleasant after-effects. It is recommended: (1) As an antifermentative and parasiticide more energetic than phenol (Giacosa, Belfanti, Curti). (2) As an antithermic, in which respect its action is more rapid and greater than that of antipyrin (Sansoni, Adler, Lépine, Oliva, Curti). (3) As a neuralgesic and analgesic—(*a*) in habitual hemicrania (Lépine, Adler, Stillé, Curti, Cao); (*b*) in supra-orbital neuralgia, sciatica, intercostal neuralgia, &c. (Adler, Sansoni); (*c*) in syphilitic pains of the limbs (Cao); (*d*) in orchitis, &c. (4) In both acute and chronic rheumatism, being in some cases superior to the salicylates (Sansoni, Adler, Cao). (5) As a substitute for iodoform in major as well as in minor surgery, being equally efficient, really antiseptic, and less toxic (Peroni, Bovero, Oliva, Bossi, Curti). (6) As a disinfectant and cicatrising agent, in bedsores, scalds, and other wounds. (7) In the various forms of herpes, as an anodyne and healing

agent. (8) In aphthous stomatitis. (9) In the treatment of venereal ulcers it is far preferable to iodoform, iodol, aristol, salicylic acid, resorcin, or chloral hydrate (Peroni, Bovero). (10) In various skin affections, especially those of parasitic origin, such as tinea, trichophyton, favus, &c.

Hypnal is a compound obtained by the mutual reaction of chloral and antipyrin. Further researches have shown that there are *several* combinations of chloral and antipyrin, one at least of which is physiologically inactive. Hence it happens that different preparations bearing the name hypnal were in the market, and therapeutical observation was thus seriously handicapped.

Herz has investigated the action of Filehne's hypnal, and finds it to be an efficient hypnotic. It usually acts within twenty to thirty minutes, and has the advantage of being *almost tasteless.* The dose for adults is from 1–3 grammes. It is easily prescribed as a 10 per cent. watery solution, along with some cordial, syrup, or tincture.—(*Ther. Monatsh.*, Marz, 1893.)

INDIAN MEDICAL SERVICE.

We are indebted to the Director-General of the Army Medical Department for this list of Surgeons on probation in Her Majesty's Indian Medical Service who were successful at both the London and Netley Examinations. The prizes are awarded for marks gained in the special subjects taught at the Army Medical School. The final positions of these gentlemen are determined by the marks gained in London added to those gained at Netley, and the combined numbers are accordingly shown in the list which follows:—

January 31st, 1894.

	Combined Marks		Combined Marks
1. Lamb, G.[a]	5,634	7. Bennett, H.	4,385
2. Burden, H.[bc]	5,188	8. Harriss, A.	4,318
3. Leumann, B. H.	4,802	9. Berry, A. E.	4,304
4. Fisher, J.	4,578	10. MacLeod, E. C.	4,282
5. Peck, E. S.	4,479	11. Thomson, C.	4,045
6. Evans, C. H.	4,419	12. Fraser, H.	4,032

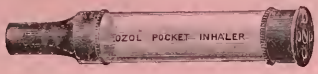
[a] Gained the Herbert Prize of £20, with the Martin Memorial Gold Medal, the Parkes Memorial Bronze Medal, the Montefiore second Prize, and a Prize in Pathology presented by Professor A. E. Wright, M.D.

[b] Gained the Montefiore Medal and Prize of 20 guineas, and the Prize in Clinical Medicine presented by Surgeon-General W. C. Maclean, C.B.

[c] Gained the De Chaumont Prize in Hygiene.

The "OZOL" Antiseptic POCKET INHALER

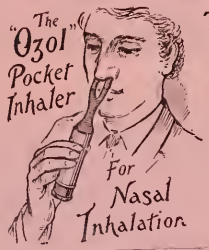
is intended for use out of doors; at the business office; when travelling, or attending to one's ordinary work. It is not unsightly, like some of the respirators in use. The absorbent medium acts as a perfect filter against fogs or noxious gases, and purifies the air as it passes through. Besides being the most approved apparatus of the sort yet devised by nurses and others in attendance on infectious diseases as a preventative against infection, as it can be carried fully charged with the Antiseptic Inhalant "Ozol."



Complete with inhalant, 2s. 6d.

which the amount of medicament inhaled can be regulated, it is strongly recommended to

DIRECTIONS FOR USE.—Unscrew the Caps at both the ends of Inhaler; slightly moisten the absorbent medium by pouring in 10 to 30 drops of "OZOL" at the broad end of the tube, replace the perforated Cap (adjusting it to draught required) and inhale the medicated air frequently during the day, through the mouthpiece, on which the protector should be replaced when not in use.



The "OZOL" Pocket Inhaler for Nasal Inhalation.

With reference to this simple, but effective appliance, an Edinburgh M.D. writes: "I think it promises to be a most useful adjunct, and may well serve even to abort an attack of nasal catarrh if used at the earliest manifestation of that troublesome complaint."

"OZOL" Pocket Inhaler, with attachment for Nasal Inhalation, 3s. carriage paid.

THE INHALANT.

"OZOL" is an oxidised oil, specially prepared for use in the inhalers above mentioned, from the needles of the *Pinus Pumilio* (Alpine pine), and from the fresh leaves of the *Eucalyptus Globulus*. "Ozol" is distinguished by its high power of oxidation, and by the delicate refreshing aroma which it imparts to the atmosphere. It is indicated in the treatment of pulmonary and laryngeal affections, hay fever, asthma, and bronchitis. Its antiseptic properties render it of great value as a preventive of fever in malarial districts; and as an agreeable and powerful disinfectant, its use in the sick room is very appropriate.

PINE.

EUCALYPTUS.

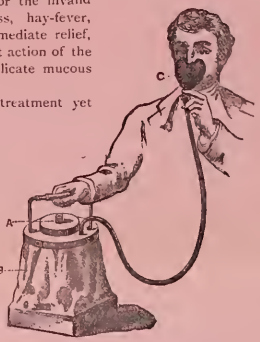
In 2-oz., 4-oz., and 8-oz. bottles, at 2/-, 3/6, and 6/6.

To carry out the New Treatment of Consumption and Lung Diseases by the Inhalation of Dry *Air charged with volatile medicaments, we manufacture the following Instruments, devised by Dr. J. J. HARTNETT :—*

The "OZOLATOR," or Compressed Dry-air Inhaler.

This is an ingenious apparatus, so constructed that it charges the atmosphere to the fullest extent with the ozonised products which it extracts from the inhalant contained in the chamber A, and by its own action forces the medicated dry air into the respiratory passages during inspiration. It has been most highly commended and approved of by the leading members of the medical profession, as well as by actors, public speakers, clergymen, and others interested in the hygiene of the respiratory organs. When the voice is husky, or the invalid suffers from influenza, bronchitis, asthma, hoarseness, hay-fever, catarrh, laryngitis, etc., the medicated dry-air gives immediate relief, and effects a gradual and lasting cure, owing to the direct action of the healing properties of the Pine and Eucalyptus on the delicate mucous lining of the bronchial tubes and lungs.

This has proved the most successful and rational treatment yet introduced for



a. MEDICATING CHAMBER ; *b.* PNEUMATIC CHAMBER ; *c.* FACE-PIECE.

PULMONARY CONSUMPTION.

By its action the Tubercle Bacilli can be directly attacked, and the antiseptic dry-air effectually introduced into the most remote recesses of the pulmonary air-cells, thereby effectually destroying the Bacilli, the real cause of the disease, and oxidising the poisonous excreta or toxines which they throw off, and which, when absorbed into the circulation, give rise to the distressing train of symptoms (night-sweats, diarrhœa, &c.) peculiar to the second and third stages of Pulmonary Consumption.

42 - each, carriage paid.

"By compressing the pneumatic chamber a draught of air is forcibly drawn through the fluid contained in the medicating chamber, and is blown from the face-piece into the respiratory tract, without any extraordinary inspiratory effort on the part of the patient. It will be at once apparent that this is an enormous gain, not only in ordinary cases of throat and chest diseases, when invalids find inhalers fatiguing to use—for it must be borne in mind that these instruments are not ordered only for a few minutes, then to be put aside and taken up again, according to the whim of the patient, but rather are intended for constant use until they afford relief. Therefore, I recommend this apparatus (which, so to speak, does the work of medicating the air, and saves the patient the fatigue of sucking or drawing it through the inhaler), as a most effectual means of treating diseases of the throat and lungs by the insufflation of medicated air."—*Extract from Dr. Hartnett's Treatise on the "Antiseptic Dry-Air Treatment of Consumption,"* published by Messrs. CHURCHILL.

For the effectual treatment of Consumption, the "OZOLATOR" should be used for half an hour at a time, four, five, or six times a day. For ordinary relaxation of the throat, and for increasing the strength and resonance of the voice, it should be used in the morning after dressing, and before retiring at night.

DIRECTIONS FOR USE.—To charge the "OZOLATOR," pour 30 drops of "OZOL" into the medicating chamber, and replace the cap; extend pneumatic chamber to the fullest extent; then compress the same, and inhale the balmy pine-air into the lungs as it is exhaled from the air-chamber.

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PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

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SECTION OF MEDICINE.

President—WALTER G. SMITH, M.D., President of the Royal College of Physicians of Ireland.

Sectional Secretary—A. N. MONTGOMERY, M.R.C.P.I.

Friday, December 15, 1893.

The PRESIDENT in the Chair.

A Case of Malignant Endocarditis.

DR. BURGESS read a paper on a case of malignant endocarditis in a married lady, aged thirty, six months pregnant. The chief interest lay in the obscurity of the case from the first, and likewise that it differed from the description of recorded cases from its symptoms. The prominent symptoms were pain of a lightning character, shooting in paroxysms from the inside of the knee to the base of the abdomen, and a fixed pain at the symphysis; also, after a time, paralysis of the bladder. The temperature was 101°, and a murmur was apparent from the first in the mitral valves, substituted in character. Miscarriage took place on the 7th day, but as the sequela gave rise to no fresh symptoms, it was not regarded as a complication. On the 18th embolism of the left cerebral artery occurred, followed by rapidly-increasing coma and death on the 20th day.

The remarkable points were—1. Murmur, which was present from the first, with an absence of any previous history of rheumatism. 2. The

nervous phenomena, which were the distinct feature. 3. The temperature, which was of the continuous type. 4. Its already alluded-to difference from the ordinary forms of pyæmia—cerebral, cardiac, or septic. 5. No occurrence of embolism took place until the 18th day, and there were no signs of renal or splenic embolism the whole time. 6. The peculiar absence of sweating.

The treatment was symptomatic.

Dr. Tweedy remarked that, as Dr. Burgess stated that he and Dr. Nixon at first considered the case one of hysteria, he wished to mention a case which he saw many years ago, and which he at first imagined to be one of hysteria, and which afterwards proved to be one of meningitis, as illustrating the difficulty that frequently existed in making an early diagnosis with accuracy.

Dr. J. W. Moore said that he had seen a case of a young married woman who was suddenly seized with febrile symptoms and rheumatoid pains. There was a systolic murmur; the temperature was high and variable, and there was extreme prostration. He and Dr. O'Carroll at first considered it to be a case of malignant endocarditis, but the patient subsequently got quite well, although for a fortnight her life appeared to be hanging in the balance.

A Case of Thrombosis of the Portal System.

The President related the case of a young man, aged thirty, who sought advice at hospital on account of cramps in the stomach and lightness in the head, attended with shivering fits. He was anæmic; the legs were swelled, but there was no albumen in the urine, either then or subsequently. Some months later he was admitted into hospital for severe abdominal pain, which had set in 13 days previously. He was very weak, and suffered from dry retching. His colour was sallow yellow; no leucocytosis. The abdomen was tensely distended and very tender. It was dull at lower part and sides, and fluctuation could be detected. No enlargement of the cutaneous veins. A systolic murmur was heard over the heart, at base and apex. The bowels were loose—four or five pasty motions in a day—and there was moderate pyrexia. He steadily became worse, and died in collapse, after a week's stay in hospital.

Post-mortem.—Liver normal in size, very hard and tough. Nodular cirrhosis, especially on under surface of left lobe. Gall bladder flaccid. About two and a half quarts of thin serous fluid escaped from peritoneum. Spleen enlarged and firm. Portal vein adherent to structures in transverse fissure. It was much dilated, and its coats thick (about 3 mm.) and leathery—not calcified. Its interior was occupied by a firm yellowish granular thrombus adherent at one side to the veins but not completely obstructing its lumen. Branches of portal vein through the liver filled with soft thrombi, closely fitting, and yet capable of being withdrawn.

Mesenteric veins occluded by soft red thrombi. The jejunum, for about one foot, was adherent to ascending colon by soft recent lymph. There was acute recent peritonitis over liver and over this portion of the bowel, which was intensely congested, and nearly black, resembling a strangulated intestine. No blood in its interior; mucous membrane eroded. The walls of the rest of the small intestine much thickened by œdematous swelling. Several veins near pyloric end of stomach firmly thrombosed. Pleural adhesions existed on each side, and there was effusion into the right pleural cavity. The probable order of events was—(*a*) cirrhosis of liver, (*b*) thrombosis of portal vein, (*c*) sudden extension of thrombosis to gastric and mesenteric veins, (*d*) peritonitis.

Dr. Tweedy said that at present there was under his care a woman suffering from ascites. Laparotomy had been performed three months previously. She has been tapped eight or nine times within the last three months, and last time he drew off more than 400 ounces of fluid. In the absence of any evidence of hepatic or other disease likely to cause the ascites, he made a provisional diagnosis of adhesive pylephlebitis.

Dr. Bewley said he had seen two cases of thrombosis of the portal vein. In one, the patient suffered from cirrhosis of the liver and dropsy, and also a good deal of abdominal pain. An autopsy revealed a rather soft clot in the portal vein without any involvement of the mesenteric veins. The second case was that of a man suffering from vomiting, pain, and distension of the abdomen. The bowels were obstinately constipated and a laparotomy was performed. About one foot of the small intestine was found to be in much the same condition as in Dr. Smith's case. There did not seem to be obstruction to the passage of matter through it. The man died shortly afterwards, and at the *post-mortem* it was found that the mesenteric and portal veins were thrombosed, as well as some of the deeper veins of the abdominal wall, where the laparotomy incision was made.

The President replied.

The Section then adjourned.

TWO LADIES' ROUND THE WORLD TRIP.

Two young ladies of Dundee—Miss F. Marie Imandt and Miss Bessie Maxwell—have started on a journey round the world. They are sent by the proprietors of the *Dundee Courier* and the *Dundee Weekly News* for the purpose of gleaning information as to the conditions of female labour in various countries.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.R.C.P.I.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, January 27, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

Towns	Weeks ending				Towns	Weeks ending			
	Jan. 6	Jan. 13	Jan. 20	Jan. 27		Jan. 6	Jan. 13	Jan. 20	Jan. 27
Armagh -	28·0	49·1	35·1	35·1	Limerick -	22·5	25·3	23·9	28·1
Belfast -	27·4	36·6	32·5	28·3	Lisburn -	17·0	25·7	34·1	21·3
Cork -	39·4	34·6	33·2	43·6	Londonderry	17·3	28·3	15·7	15·7
Drogheda	35·1	52·7	52·7	17·6	Lurgan -	31·9	4·6	13·7	22·8
Dublin -	26·1	41·5	30·0	31·9	Newry -	36·2	36·2	44·3	16·1
Dundalk -	16·8	20·9	29·3	8·4	Sligo -	20·3	15·2	40·6	25·4
Galway -	7·6	18·9	30·2	60·5	Waterford -	27·5	45·0	20·0	30·0
Kilkenny	23·6	33·0	37·8	28·3	Wexford -	36·1	36·1	54·2	45·2

In the week ending Saturday, January 6, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 24·5), was equal to an average annual death-rate of 22·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·5 per 1,000. In Glasgow the rate was 22·6, and in Edinburgh it was 20·2.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 27·0 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in ten of the districts to 4·4 in Belfast and Drogheda—the 142 deaths from all causes registered in Belfast comprising 13 from measles, 5 from whooping-cough, 1 from diphtheria, 1 from enteric fever, and

3 from diarrhœa; and the 8 deaths in Drogheda including 6 from whooping-cough. Among the 57 deaths from all causes registered in Cork are 3 from measles. The Assistant-Registrar of Cork No. 5 District remarks: "Measles is very prevalent."

In the Dublin Registration District the registered births amounted to 171—85 boys and 86 girls; and the registered deaths to 182—85 males and 97 females.

The deaths, which are 39 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 27·1 in every 1,000 of the population, or 5·9 under the mean rate for the first week of the ten years 1884–1893. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 26·1 per 1,000.

The number of deaths from zymotic diseases registered was 24, being 2 over the average for the 1st week of the last ten years, but 16 under the number for the week ended December 30, 1893. The 24 deaths comprise 3 from measles, 1 from scarlet fever (scarlatina), 7 from influenza and its complications, 5 from whooping-cough, 2 from enteric fever, 2 from dysentery, and 1 from erysipelas.

Only 4 cases of enteric fever were admitted to hospital, against 14 admissions in the preceding week. Fourteen enteric fever patients were discharged, 1 died, and 65 remained under treatment on Saturday, being 11 under the number in hospital on Saturday, December 30.

The number of cases of scarlatina admitted to hospital was 12, being an increase of 3 as compared with the admissions for the preceding week. Four patients were discharged and 101 remained under treatment on Saturday, being 8 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 11 cases of measles (being 17 under the number for the preceding week) and 2 of typhus: 52 cases of the former and 8 of the latter disease remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 48, being 11 below the average for the corresponding week of the ten years 1884–1893, and 8 under the number for the week ended December 30. The 48 deaths comprise 29 from bronchitis and 14 from pneumonia or inflammation of the lungs.

In the week ending Saturday, January 13, the mortality in thirty-three large English towns, including London (in which the rate was 29·5), was equal to an average annual death-rate of 28·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 23·8 per 1,000. In Glasgow the rate was 24·4, and in Edinburgh it was 21·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 36·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·4 per 1,000, the rates varying from 0·0 in nine of the districts to 6·6 in Belfast and 7·0 in Armagh—the 189 deaths from all causes registered in Belfast comprising 13 from measles, 2 from scarlatina, 10 from whooping-cough, 1 from diphtheria, 4 from enteric fever, and 4 from diarrhœa; and the 7 deaths in Armagh comprising 4 from scarlatina. The Assistant-Registrar of the latter district reports the occurrence of 2 deaths from influenza.

In the Dublin Registration District the registered births amounted to 211—112 boys and 99 girls; and the registered deaths to 285—132 males and 153 females.

The deaths, which are 47 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 42·5 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 41·5 per 1,000. During the first two weeks of the current year the death-rate averaged 34·8, and was 0·5 over the mean rate in the corresponding period of the ten years 1884-1893.

Thirty-seven deaths from zymotic diseases were registered, against 24 for the preceding week and an average of 28 for the second week of the last ten years. They comprise 7 from measles, 1 from typhus, 7 from influenza and its complications, 6 from whooping-cough, 1 from ill-defined fever, 2 from enteric fever, 1 from diarrhœa, and 3 from dysentery.

Ten cases of enteric fever were admitted to hospital, being 6 in excess of the admissions for the preceding week, but 4 under the number for the week ended December 30. Thirteen enteric fever patients were discharged and 62 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

Sixteen cases of scarlatina were admitted to hospital against 12 admissions for the preceding week, and 9 for the week ended December 30. Twenty-three patients were discharged and 94 remained under treatment on Saturday, being 7 under the number in hospital on Saturday, January 6.

The hospital admissions for the week included, also, 9 cases of measles (being 2 under the number for the preceding week) and 2 of typhus: 36 cases of measles and 6 of typhus remained under treatment in hospital on Saturday.

Eighty-one deaths from diseases of the respiratory system were registered, being 13 in excess of the average for the corresponding week of the last ten years, and 33 over the number for the week ended January 6. They comprise 56 from bronchitis and 18 from pneumonia or inflammation of the lungs.

In the week ending Saturday, January 20, the mortality in thirty-three large English towns, including London (in which the rate was 23·7), was equal to an average annual death-rate of 23·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·6 per 1,000. In Glasgow the rate was 22·0, and in Edinburgh it was 19·8.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 30·9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·5 per 1,000, the rates varying from 0·0 in six of the districts to 12·6 in Dundalk—the 7 deaths from all causes registered in that district comprising 1 from scarlatina and 2 from diphtheria. Among the 168 deaths from all causes registered in Belfast are 11 from measles, 5 from whooping-cough, 2 from diphtheria, 3 from enteric fever, and 1 from diarrhœa. The 48 deaths in Cork comprise one from each of the following diseases: measles, simple continued fever, enteric fever, and diarrhœa. The 8 deaths in Lisburn comprise 2 from whooping-cough. The Assistant-Registrar of Armagh district reports the occurrence of another death from influenza.

In the Dublin Registration District the registered births amounted to 206—116 boys and 90 girls; and the registered deaths to 207—99 males and 108 females.

The deaths, which are 32 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 30·9 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 30·0 per 1,000. During the first three weeks of the current year the death-rate averaged 33·5, and was 1·3 under the mean rate in the corresponding period of the ten years 1884–1893.

Forty deaths from zymotic diseases were registered, being 3 over the number for the preceding week and 13 in excess of the average for the third week of the last ten years. They comprise 3 from measles, 9 from influenza and its complications, 12 (including 4 in No. 1 South City—South Earl-street—District, and 3 in Kingstown) from whooping-cough, 1 from diphtheria, 5 from enteric fever, 4 from diarrhœa, and 1 from erysipelas.

Eleven cases of enteric fever were admitted to hospital, being 1 over the admissions for the preceding week: 13 enteric fever patients were discharged and 60 remained under treatment on Saturday, being 2 under the number in hospital at the close of the preceding week.

Only 5 cases of scarlatina were admitted to hospital against 16 in the preceding week, and 12 in the week ended January 6. Eleven patients were discharged, 1 patient died, and 87 remained under treatment on Saturday, being 7 under the number in hospital on Saturday, January 13.

The hospital admissions for the week included, also, 2 cases of measles (being 7 under the number for the preceding week) and 4 of typhus: 24 cases of measles and 6 of typhus remained under treatment in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered was 53, being 17 below the average for the corresponding week of the last ten years, and 28 under the number for the week ended January 13. The 53 deaths comprise 37 from bronchitis and 12 from pneumonia or inflammation of the lungs.

In the week ending Saturday, January 27, the mortality in thirty-three large English towns, including London (in which the rate was 19·8), was equal to an average annual death-rate of 20·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·0 per 1,000. In Glasgow the rate was 22·3, and in Edinburgh it was 18·3.

The average annual death-rate in the sixteen principal town districts of Ireland was 30·5 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 3·1 per 1,000, the rates varying from 0·0 in seven of the districts to 11·3 in Galway—the 16 deaths from all causes registered in that district comprising 2 from whooping-cough and 1 from diarrhœa. Among the 146 deaths from all causes registered in Belfast are 9 from measles, 2 from scarlatina, 7 from whooping-cough, and 1 from diphtheria. The 63 deaths in Cork comprise 1 from measles and 2 from diarrhœa. The Assistant-Registrar of Armagh reports the occurrence of another death from influenza; and the Registrar of Lisburn District remarks:—"Pertussis (whooping-cough) very prevalent."

In the Dublin Registration District the registered births amounted to 192—93 boys and 99 girls; and the registered deaths to 217—100 males and 117 females.

The deaths, which are 8 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 32·3 in every 1,000 of the population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 31·9 per 1,000. During the first four weeks of the current year the death-rate averaged 33·2, and was 1·3 under the mean rate for the corresponding period of the ten years 1884–1893.

The deaths from zymotic diseases registered amounted to 42, being 2 over the number for the preceding week and 18 in excess of the average for the fourth week of the last ten years. They comprise 1 from chicken pox, 3 from measles, 2 from scarlet fever (scarlatina), 1 from typhus, 9

from influenza and its complications, 11 from whooping-cough, 2 from diphtheria, 1 from simple continued fever, 2 from enteric fever, 1 from diarrhœa, and 2 from erysipelas.

Sixteen cases of enteric fever were admitted to hospital, being 5 over the admissions for the preceding week: 16 enteric fever patients were discharged, 2 died, and 58 remained under treatment on Saturday, being 2 under the number in hospital on Saturday, January 20.

The number of cases of scarlatina admitted to hospital was 13, being an increase of 8 as compared with the admissions for the preceding week: 32 patients were discharged and 68 remained under treatment on Saturday, being 19 under the number in hospital on Saturday, January 20.

The hospital admissions for the week included, also, 7 cases of measles (against 2 for the preceding week) and 1 of typhus: 17 cases of the former and 5 of the latter disease remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had fallen from 81 for the week ended January 13 to 53 in the following week, further declined to 48, or 14 below the average for the corresponding week of the last ten years. The 48 deaths comprise 33 from bronchitis, 7 from pneumonia or inflammation of the lungs, and 3 from croup.

Meteorology.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of January, 1894.

Mean Height of Barometer,	29·718 inches.
Maximal Height of Barometer (on 3rd, at 9 a.m.),	30·619 „
Minimal Height of Barometer (on 31st, at 2 p.m.),	29·140 „
Mean Dry-bulb Temperature,	40·1°.
Mean Wet-bulb Temperature,	38·0°
Mean Dew-point Temperature,	34·8°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·209 inch.
Mean Humidity,	82·1 per cent.
Highest Temperature in Shade (on 11th),	54·7°.
Lowest Temperature in Shade (on 7th),	18·6°.
Lowest Temperature on Grass (Radiation) (on 6th)	15·6°.
Mean Amount of Cloud,	52·8 per cent.
Rainfall (on 23 days),	2·838 inches.
Greatest Daily Rainfall (on 12th),	·334 inch.
General Directions of Wind,	S.W., W.S.W., W.

Remarks.

Opening with a spell of easterly winds and intensely cold weather, this month ultimately proved wet, open, and stormy, with an almost uninterrupted prevalence of south-westerly and westerly winds. The cold of the first few days of the month was produced in connection with an anticyclone which formed over Central Europe towards the close of December, aided by a down-rush of polar air in the rear of a deep cyclonic system which travelled eastwards across the extreme north of Russia on the 1st and 2nd. The intensity of the frost on the night of the 5th was very great in the inland parts of both England and Ireland. Even at Valentia Island the thermometer sank to 20° in the screen.

In Dublin the arithmetical mean temperature (41·0°) was slightly below the average (41·4°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 40·1°. In the twenty-nine years ending with 1893, January was coldest in 1881 (M. T. = 32·2°), and warmest in 1875 (M. T. = 46·6°). In 1867, the M. T. was 35·7°, and in 1865 it was 37·8°. In 1871 and in 1886 the M. T. was 37·9°; in 1879 (the "cold year") it was 35·3°. In 1888 the M.T. was 42·1°; in 1889, 42·4°; in 1890, 44·5°; in 1891, 40·1°; in 1892, 38·8°; and in 1893, 40·8°. As a general rule, January in Dublin is not colder, but a shade warmer, than December. This is owing to the full development in January of a winter area of low pressure over the Atlantic, to the northwestward of the British Isles, and to a resulting prevalence of S.W. winds in their vicinity. January, 1894, proved an exception to this rule, the M.T. being 2·5° below that of December, 1893 (43·5°).

The mean height of the barometer was 29·718 inches, or 0·156 inch below the corrected average value for January—namely, 29·874 inches. The mercury rose to 30·619 inches at 9 a.m. of the 3rd, and fell to 29·140 inches at 2 p.m. of the 31st. The observed range of atmospheric pressure was, therefore, as much as 1·479 inches—that is, a little less than one inch and a half.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 40·1°, or 2·7° below the value for December, 1893. Using the formula, *Mean Temp.* = *Min.* + (*max.* − *min.* × ·52), the M. T. becomes 41·2°, compared with a twenty-five years' average of 41·5°. The arithmetical mean of the maximal and minimal readings was 41·0°, compared with a twenty-five years' average of 41·4°. On the 11th the thermometer in the screen rose to 54·7°—wind, S.; on the 7th the temperature fell to 18·6°—wind, S.S.W. The minimum on the grass was 15·6° on the 6th.

The rainfall was 2·838 inches, distributed over 23 days. The average rainfall for January in the twenty-five years, 1865–89, inclusive, was

2·200 inches, and the average number of rainy days was 17·3. The rainfall, therefore, and the rainy days were both above the average. In 1877 the rainfall in January was very large—4·322 inches on 25 days; in 1869, also, 4·258 inches fell—on, however, only 18 days. On the other hand, in 1876, only ·406 of an inch was measured on but 9 days; and in 1880 the rainfall was only ·563 of an inch on but 8 days. In January, 1886, 3·244 inches of rain were measured on as many as 26 days; in 1887 (the "dry year"), 1·816 inches fell on 16 days; in 1888, 1·247 inches on 9 days; in 1889, 2·213 inches on 16 days; in 1890, 2·975 inches on 21 days; in 1891, only ·672 of an inch on 14 days; in 1892, 1·698 inches on 20 days, and in 1893, 2·239 inches on 19 days.

Lunar coronæ were seen on the 16th and 17th. The atmosphere was foggy on the 6th, 7th, and 14th. High winds were noted on no less than 21 days, reaching the force of a gale on 9 days—the 4th, 5th, 8th, 12th, 20th, 27th, 28th, 29th, and 30th. Hail fell on the 2nd, 4th, 22nd, 25th, 27th, 28th, and 29th, and snow or sleet on the 3rd, 4th, 5th, 6th, 28th, 30th, and 31st. Temperature exceeded 50° in the screen on 13 days, compared with 7 days in 1893, 6 days in 1892, only 5 days in 1891, 17 days in 1890, and 8 days in 1889; while it fell to or below 32° in the screen on only 7 nights, compared with 4 nights in 1893, 15 nights in 1892, 7 nights in 1891, 1 night in 1890, and 3 nights in 1889. The minima on the grass were 32°, or less, on 17 nights, compared with 16 nights in 1893, 25 nights in 1892, 21 nights in 1891, 15 nights in 1890, and 16 nights in 1889. Lightning was seen on the evening of the 7th.

As in 1893, weather of unusual severity held over the greater part of Europe throughout the opening period of the year, January 1–6. Rough easterly winds, low temperatures, and frost and snow took the place of the stormy southwesterly winds, rains and mild temperatures which characterised all but the closing days of December, 1893. Sunday (December 31) was a damp, foggy, very cold day in Dublin. Open weather prevailed in the N., severe cold in the S. An anticyclone had its centre over the southern half of Ireland, the barometer reading 30·63 inches at 8 a.m. at Parsonstown. A deep depression was at the same moment travelling eastwards across the north of Russia, the barometer being as low as 28·60 inches in that region. In the rear of the depression over Northern Russia the barometer rose with great rapidity, so that at 8 a.m. of Wednesday, the 3rd, the reading at Færder, near Christiania in Norway, is stated to have been 31·07 inches. At this time atmospheric pressure was low in the Mediterranean basin (29·60 inches at Nice): consequently a strong and bitterly cold easterly wind began to blow over Germany, France, and the southern part of the British Islands. The result was a spell of truly Siberian cold. At 8 a.m. of Friday the thermometer read 14° in London. In Dublin a strong easterly gale had

prevailed during the previous night, and at 11 a.m. a heavy snowstorm set in with a temperature of 27°. This was renewed in the evening, and Saturday broke with an intense frost, 20° being the temperature at 9 a.m. The thermometer had fallen to 8·6° at the Ordnance Survey Office, Phœnix Park, during the previous night. A fine snow or frozen aqueous vapour fell lightly for several hours on this day, while the clouds came from S. and S.W. In Dublin the mean height of the barometer during the week was 30·233 inches, pressure ranging from 30·619 inches at 9 a.m. of Wednesday, the 3rd (wind, E.) to 29·543 inches at 3 p.m. of Saturday (wind, calm). The corrected mean temperature was 34·0°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 32·7°. On Monday the thermometers rose to 43·6° in the screen, on Saturday they fell to 19·8°. The rainfall was ·179 inch on three days, ·151 inch falling as snow on Friday. Easterly winds prevailed. At 11 p.m. of Saturday the thermometer fell to 18·6° in the screen. On Friday night the lowest minima were 5° at Loughborough, 6° at Parsonstown and Armagh, and 10° at York. At Worksop, in Notts, a minimum of –4·4° was recorded.

Remarkable changes in the weather were experienced in Western Europe in the course of the week ended Saturday, the 13th, warmth and rain taking the place of bitter cold and snow. On the other hand, continuous frost held in Germany, Austria, and Russia, where also the distribution of atmospheric pressure remained anticyclonic throughout, the barometer ranging from 30·60 to 30·80 inches and upwards over Russia. At the beginning of the week gradients for S.W. and S. winds were already forming over the British Islands. On Monday these became steep, and during the remainder of the period depression after depression passed in quick succession northwards outside our western coasts, causing gales in the west and north of the United Kingdom, with heavy rains from time to time in all districts. At the same time, many fine, bright intervals were enjoyed. But the most striking feature in the week's weather was the extraordinary rise of temperature which accompanied the establishment of the S. and S.W. winds. On Sunday morning severe frost prevailed everywhere, except at the west-coast stations both in Great Britain and in Ireland. At Aberdeen the temperature at 8 a.m. was only 14.° By Monday morning the thaw had become general in Ireland, but hard frost still held in the centre and east of Great Britain. At 8 a.m. the thermometer read 17° at Shields. On Tuesday morning no frost was reported from any British station. The temperature now rose day by day until Thursday, when maxima of 57° at Loughborough, 55° at Nairn and in Dublin, and 54° at Oxford, were recorded. Thunder and lightning occurred on Sunday at Valentia Island in Kerry and lightning was seen at Prawle Point and Holyhead as well as from Dublin. In this city the mean atmospheric pressure was 29·600 inches, the barometer rising to 29·890 inches at 9 p.m. of Sunday (wind, S.S.W.),

and falling to 29·385 inches at 9 p.m. of Wednesday (wind also S.S.W.). The corrected mean temperature was 43·6°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 43·4°. On Sunday the thermometers in the screen fell to 18·6°, on Thursday they rose to 54·7°. The rainfall was 1·055 inches on six days, ·334 inch being measured on Friday. Southerly (S.E. to S.W.) winds prevailed throughout. In Dublin the thermometer stood 30° higher on Saturday morning than it had stood that day week.

Except on Sunday, which was a fine, quiet, bright day in Ireland, but very wet in England, the weather during the week ended Saturday, the 20th, was very disturbed—open, squally, and rainy, but with bright intervals. Even in Germany the frost broke up on Monday, and considerable falls of rain occurred from time to time. The fine weather in Ireland was brought about by the presence of small subsidiary areas of low pressure (secondary depressions) over Wales, England, and Brittany. The effect of these was to equalise pressure over Ireland, so that the wind fell light and the sky cleared. On Monday these systems had passed away and a new primary depression approached Ireland from S.W., causing fresh southerly winds and rain. Several areas of low pressure subsequently passed northeastwards along the western shores of the British Islands, keeping the weather unsettled with frequent rain and squally S.W., W., and N.W. winds. On Wednesday night the barometer sank below 29 inches over the North of Scotland, and on Saturday morning pressure was as low as 28·72 inches at Wick. A moderate W.S.W. gale prevailed for some hours on this day, and rain fell in plentiful showers. In Dublin the mean atmospheric pressure during the week was only 29·569 inches, the barometer being observed to range between 29·887 inches at 9 p.m. of Sunday (wind, W.N.W.), and 29·186 inches at 9 a.m. of Saturday (wind, W.S.W). The corrected mean temperature was 45·9°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 44·4°. On Tuesday the screened thermometers rose to 53·5°; on Monday they fell to 36·3°. Rain was measured on five days to the amount of ·533 inch, the maximal fall in 24 hours being ·183 inch on Friday. The prevalent wind was W.S.W.

The westerly type of weather still held over Western Europe throughout the week ended Saturday, the 27th. Several deep depressions passed northeastwards across the Norwegian Sea, while their secondaries traversed the British Islands and the adjoining seas. In consequence of this unsettled state of atmospheric pressure, the weather remained in an exceedingly broken, rough, and rainy condition, and changes of temperature were both sudden and extreme. At 8 a.m. of Sunday the barometer was down to 28·67 inches at Bodö in the north-west of Norway, but as high as 30·32 inches at Biarritz, and 30·40 inches at Lisbon. Strong W.S.W. winds, cloudy skies, and open weather prevailed, and in the afternoon rain fell heavily for a time in Ireland. Monday was colder

and brighter, with showers of cold rain and hail. Tuesday was fair and frosty, but at night a new break in the weather began in Ireland, whereas the frost became sharp in England. On this night the screened thermometer fell to 23° at Loughborough and Cambridge, and to 24° in London. This frost was of short duration, for within 24 hours temperature had risen 20° over the centre and S.E. of England, and warm S.W. winds were again sweeping all over the country. A sudden chill on Thursday evening covered the Dublin mountains with snow, but this had all disappeared by Friday afternoon. A fresh to strong gale from W.S.W. followed, and rain fell heavily at times on Saturday. In Dublin the mean atmospheric pressure was 29·670 inches, the barometer ranging between 30·121 inches at 9 p.m. of Tuesday (wind, S.W.), and 29·306 inches at 2 p.m. of Saturday (wind, W.S.W.). The corrected mean temperature was 42·0°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 41·3°. On Saturday the screened thermometers rose to 52·3°, on Tuesday they fell to 31·0°. Rainfall was measured on five days, the total amount being ·530 inch, of which ·280 inch fell on Saturday. The prevalent wind was once more W.S.W.

During the last four days of the month the weather remained in the unsettled, stormy condition which proved so characteristic of January, 1894. At 8 a.m. of Sunday, the 28th, the barometer was down to 28·11 inches at Bodö in Norway, while it stood as high as 30·40 inches at Lisbon. Gradients for westerly winds were very steep over the British Islands. Needless to say the weather was rough and inclement. Snow showers fell in the morning, and sleet and rain in the evening in Dublin. On Monday, the 29th, another large depression came in from the Atlantic, reaching the Shetlands on Tuesday morning. On the evening of the 30th a heavy fall of wet snow occurred in Dublin, and the last day of the month was very severe—snow-showers at midday being followed by a thaw in the afternoon.

In Dublin the rainfall up to January 31, 1894, amounted to 2·838 inches on 23 days, compared with a twenty-five years' average (1865-1889) of 2·200 inches on 17·3 days.

At Knockdolian, Greystones, Co. Wicklow, 4·390 inches of rain fell on 24 days. The heaviest falls in 24 hours were ·630 inch on the 8th, and again on the 10th, and ·450 inch on the 15th.

At Fassaroe, Bray, Co. Wicklow, 5·075 inches fell on 22 days.

At Cloneevin, Killiney, Co. Dublin, the rainfall was 3·260 inches on 23 days, ·550 inch being measured on the 12th. This was the highest rainfall recorded at this station in January during the past 10 years. The average fall for the preceding 9 years was 1·880 inches on 15 days.

PERISCOPE.

ABSTRACTS OF GYNÆCOLOGICAL AND MIDWIFERY PAPERS.

1. Dr. Charles Noble (*American Journal of Obstetrics, &c.*, on Diseases of Women, &c., Dec., 1893), deals with the relation of certain urinary conditions to gynæcological surgery. His conclusions are summed up as follows:—1. A systematic examination of the urine of gynæcological patients, especially those requiring cœliotomy, should be made. 2. That the presence of albumin, and even casts, in the urine, need not affect the issue of the operation. 3. That serious and prolonged cœliotomies, involving much handling of the abdominal viscera, in women having chronic Bright's disease (especially the small contracted kidney) usually terminate fatally. 4. That the prognosis is best when the presence of albumin and casts in the urine is due to the pressure of an ovarian cyst, which can be quickly removed.

2. Dr. Hiram M. Vineberg contributes a paper to the January number of the *New York Journal of Obstetrics and Gynæcology*, describing Mackenrodt's new operation for the cure of retroflexion. He says—"The patient is placed in the lithotomy position, and the vagina and vulva are thoroughly scrubbed. I invariably precede the operation by a curettage, for, even if no endometritis be present—which is unlikely—it is well to have a clean aseptic cavity in the event of the needle, in suturing the uterus, going through the whole thickness of the uterine wall. The value of doing a curettage before any operation, during which the uterine cavity may be entered, has been fully taught us by Dr. Edenbohls. If there be present a pathological laceration of the cervix, this is next repaired, or an amputation done, if the condition seems to demand it. The first step of the operation consists in seizing the anterior lip of the cervix with two vulsellæ, and drawing the cervix downward to the vulva, or outside of it, if this can be done without employing unnecessary force. The anterior vaginal wall, about three quarters or one inch from the urethral opening, is caught with another vulsella and drawn upward. In this way the wall of the vagina is put on the stretch. Then a longitudinal incision is made in the median line, through the anterior vaginal wall, extending from one inch below the urethral opening to the vaginal attachment of the cervix. The vaginal wall is now separated on either side from the underlying bladder, partly by sharp and partly by dull dissection. The hæmorrhage attending this part of the operation may be not inconsiderable, and comes from the vaginal branches of the uterine artery. The next step consists in holding asunder the two vaginal flaps by tenacula at the lower angle of the wound, and making a slight curved

incision with the convexity towards the cervix down upon the cervical tissue. This incision is made in the already denuded surface, and cuts through the vesico-vaginal septum. Before making it, it is well to ascertain the extent to which the bladder is adherent to the cervix, so as to avoid cutting into it. The bladder is then separated from the cervix and pushed back with the finger, as is done in vaginal hysterectomy, and may be carried to the upper angle of the wound, where it can be held with an ordinary vaginal depressor. A thick sound, with a knob at the end, is now passed into the uterus, and the uterus is anteverted, so that its anterior wall presents in the vaginal wound. The next step consists in resecting a strip from each flap in cases of prolapsus of the anterior wall. The width of the resected strips is made to depend upon the degree of prolapsus and relaxation, and they together form a strip of an oval shape. Then, with a stout curved needle a silk suture is passed through the right vaginal flap at the extreme upper end of the incision—that is, from three-quarters to one inch distant from the urethral opening, and about half an inch from the edge of the flap. The suture is then carried through the anterior wall of the uterus, quite near to the fundus, then out through the left vaginal flap, at a corresponding point to that of the opposite side. A second suture is passed in the same way about half an inch below the first. The sutures are now tied firmly, and the vaginal flaps are brought together by a continuous catgut or silk suture. A couple of interrupted sutures may be passed to strengthen the line of coaptation. The lower stitches are made to catch up the cervix to avoid any pocketing. If there be any prolapsus of the posterior wall, or a laceration of the perinæum, these are now attended to. The vagina is then packed lightly with iodoform gauze to absorb any oozing, and the patient is placed in bed. She is kept in bed for three weeks, the uterine sutures being removed at the end of the fifth or sixth week.

EXAMINATION OF CANDIDATES FOR HER MAJESTY'S ARMY AND INDIAN MEDICAL SERVICES.

THE following papers were set in August, 1893:—*Anatomy and Physiology.*—Mr. Makins.—Monday, 14th August, 1893—from 10 a.m. till 1 p.m.—[N.B.—The replies to be written with the INK provided, *and not with a pencil or pale ink.*]—1. Describe the course and relations of the internal jugular vein, what tributaries does it receive? Explain how the venous circulation is maintained when the right internal jugular is ligatured in the neck.—2. Describe the course and distribution of the external popliteal nerve and its various branches. What is the result of section of this nerve in the popliteal space?—3. Describe the course and relations of the æsophagus. At what points do variations in the lumen of the tube occur? What structures need division or separation in the incision made at the root of the neck for the operation of æsophago-

tomy?—4. Describe the arrangement of the lymphatic glands in the groin? What functions are ascribed to the lymphatic glands, and what are the sources and use of the lymphatic secretion?—[May we suggest that "œsophagus" and "œsophagotomy" are the correct spellings of these words.—Ed. *D. J. M. S.*]

Surgery.—Sir William MacCormac.—Monday, 14th August, 1893—from 2 p.m. to 5 p.m.—*All four questions to be answered.*—1. Give the signs of subcoracoid dislocation of the humerus. Explain the causes of the occasional failure to diagnose the nature of the injury. What lesions occur to the joint and the structures surrounding it? State precisely the method of reduction by manipulation in a recent case, preferably that suggested by Professor Kocher.—2. Describe the pathological changes which take place in senile enlargement of the prostate. Describe and explain their effects upon the passage of urine from the bladder. Discuss fully the treatment of the disease.—3. What forms of injury to the eye are most liable to be followed by sympathetic ophthalmia? What structures are affected in this disease? Give the treatment you would adopt, as well as the indications which guide you in deciding upon it.—4. Enumerate the causes tending to produce a varicose condition in the veins of the lower extremity. What veins are affected, and what are the pathological changes which take place in them? Give your treatment, and state the indications for operative interference.

Medicine.—Dr. Allchin.—Tuesday, 15th August, 1893—from 10 a.m. till 1 p.m.—1. Comment on the following case with reference (*a*) to its diagnosis, pathology, and probable *post-mortem* appearances, indicating the relation of the latter to the symptoms; (*b*) to treatment:—O. H., aged thirty-one, was admitted to the hospital complaining of great weakness, with dyspnœa and palpitation on exertion. He states that he has suffered from shortness of breath for years, and that during the past few months this has much increased, and he has become very much weaker. He has never fainted. He has been occupied as a gardener in the country, and followed his work, which has never been laborious, up to a fortnight prior to admission. Has always lived well. Has had rheumatic fever four times, the first attack when a boy, the last five years ago. Has not had syphilis, nor has there been any alcoholic excess. On admission, the patient was found to exhibit no distress or pain when lying in bed, but became markedly dyspnœic on slight exertion. There was distinct wasting and considerable muscular weakness. Complexion sunburnt, with a yellow waxy tinge showing through; mucous membranes pale. No cyanosis, jaundice, or œdema. No pain, or swelling of joints. The skin was hot and dry, though perspiring at night; temperature 101·8° Fahr. Respirations 22; radial pulse, 102, full, compressible, not markedly collapsing; vessel firm. Arterial pulsation in the neck very pronounced, and distinctly visible in temporal and other superficial

arteries. Capillary pulsation easily obtained. A systolic thrill perceptible in the carotids. The precordium considerably bulged. Cardiac impulse diffused over the fourth, fifth, and sixth intercostal spaces on the left of the sternum; pulsation also visible in the second and third spaces of the right side. No distinct systolic recession. The point of maximum cardiac impulse was in the sixth interspace, half an inch outside the vertical nipple line; the impulse very forcible and heaving. At the base of the heart was to be heard a rough murmur replacing the first sound, and conducted to the second right cartilage; and the second sound was replaced by a loud prolonged murmur, audible over most of the cardiac area, but especially down the sternum; a soft systolic bruit was to be heard at the apex, conducted into the axilla. The breathing slightly quickened, but no loss of resonance over the lungs, and the breath sounds were normal, except for very occasional crackling râles. There was no ascites, and no increase in area of hepatic or splenic dulness. Urine acid, sp. gr. 1027, with a trace of albumen. The patient lived a month after admission to the hospital. During this time he became progressively weaker, until scarcely able to move. The temperature was always raised, but of an irregular type, ranging from 100° Fahr. to 103·6° Fahr., the highest point in the 24 hours being usually in the evening. Skin generally hot and dry; but at times somewhat profuse sweating occurred. Tongue dry and tremulous, and became increasingly so towards the end. The cardiac condition remained about the same as on admission, except that the impulse was less heaving in character, with a tendency to irregular and weak action. The inspiration became quicker and shallower, with râles more constantly present at the bases of the lungs, and a little expectoration of blood-stained mucus. A fortnight before he died he was seized with sharp pains over the left side, and there was some increase in the area of dulness over the region of the spleen. The urine usually contained a trace of albumen, and on several occasions blood. A week after admission there appeared an eruption of purpuric spots over the trunk, which lasted more or less distinctly for a fortnight, some of the spots being nearly half an inch in diameter. Two days before he died the patient passed his urine and motions under him.—2. Describe the morbid state known as perityphlitis, also its etiology, symptoms, and treatment.—3. Describe the naked eye and microscopic changes found in the lungs in a case of tubercular phthisis.—4. Enumerate the symptoms which a case of alcoholic cirrhosis of the liver might present, and describe in full detail the treatment you would pursue.

Chemistry and Pharmacy.—Dr. Shore.—Tuesday, 15th August, 1893—from 2 p.m. till 4 p.m.—1. Describe fully experiments by which you can prove—(*a.*) That atmospheric air is a mixture and not a chemical compound. (*b.*) That its approximate composition by volume is O = 21, N = 79. (*c.*) That its composition by weight is about O = 23·14, N =

76·86.—2. Enunciate and explain the "periodic law" of Mendeléeff. Illustrate the scientific importance of this law.—3. Describe how ordinary ethylic alcohol can be synthetically prepared. Mention the chief products of the oxidation of ordinary alcohol, and show how they can be prepared from it.—4. Mention the alkaloids and organic acids contained in the cinchona barks. What are the tests for the more important alkaloids? Enumerate the official preparations made from the barks and their alkaloids.

Natural Sciences.—Dr. Shore.—Tuesday, 15th August, 1893—from 4 p.m. till 6 p.m.—*Zoology and Comparative Anatomy*:—1. Give a short account of the general structure and life-history of a star-fish.—2. Classify fishes. Briefly state the differences between the elasmo branch and the bony fishes. *Botany*:—3. Describe concisely what is meant by assimilation, respiration, and transpiration as applied to plants.—4. Give an account of the structure of the flower in each of the following natural orders:—Leguminosæ, Compositæ, Labiatæ, and Gramineæ. *Physics and Physical Geography*:—5. Give an account of the principle of the conservation of energy, showing, by the aid of examples, exactly what is meant by it. Give definitions of the terms *dyne* and *erg*.—6. To what different kinds of movement is the crust of the earth subject? Give examples. Explain as far as you can the causes of the phenomena you describe.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Ophthalmic Tabloids and Apparatus.

Messrs. Burroughs, Wellcome, & Co., of Snow-hill Buildings, London, E.C., have submitted to our notice some ophthalmic "tabloids" and ophthalmic apparatus, which they have lately introduced.

The *ophthalmic "tabloids"* are extremely delicate in appearance, of the thickness of note paper, unchangeable in composition, stated to be absolutely reliable in any climate, very soluble and when placed upon the conjunctival surface are immediately dissolved in the lacrymal secretion and are diffused over the surface of the eye. In the case of those "tabloids" which contain cocaïn in addition to the active constituent, it will be found that anæsthesia is readily obtained without in the least impairing the desired physiological effect. These ophthalmic "tabloids," with two exceptions, are intended to be inserted in the eyelid as they are, and this is a distinct advantage over the "drop" treatment, as the frequent installation of a solution is often distressing and irritating. Besides this, under some conditions, the constant introduction of a remedy is certainly injurious, since it disturbs the absolute rest which is such an important

element in the treatment, and in the case of children often causes alarm and resistance. It has also been pointed out that solutions when instilled into the conjunctival sac are only retained in small quantity, and that quantity becomes so much diluted with the lacrymal fluid as to utterly fail to produce any effect. We venture to think that these ophthalmic "tabloids" supply a long-felt want, and will be found of the utmost value to members of the medical profession all over the world. A list of the various formulæ at present made is supplied by the firm in a printed circular. The "tabloids" are supplied in tubes of 25 (excepting homatropin, of which there are only 12 in a tube), at six shillings per dozen tubes.

Ophthalmic Tabloid Holder.—This little instrument consists of a celluloid tube with a small india-rubber ball attached. The tube has a concave termination which is just large enough to hold a "tabloid." In using the holder the following directions must be observed:—The rubber ball must first of all be compressed and the end of the tube placed accurately over the "tabloid," so that it can be drawn into the concavity by relaxing the pressure of the finger upon the ball. The eyelid of the patient should then be everted with the forefinger of the left hand, and the "tabloid" gently dropped into the outer canthus. The price of the holder is eight pence.

Ophthalmic Case.—This is a small and compact case which can be comfortably carried in the waistcoat pocket, and contains a medicine dropper and camel hair brushes, a "tabloid" holder, a small glass mortar and pestle, and nine tubes of ophthalmic "tabloids," forming a complete equipment for the treatment of diseases and affections of the eye. The price of the case complete is seven shillings and sixpence.

Chromatic Dial for Testing Colour Vision.—This supplies a ready and reliable method of testing colour perception, which is far more easy of application than the old methods. The contrivance consists of two cardboard discs, six inches in diameter, so fastened on a central pin that one can be made to revolve upon the other. The test colours, red, pink, and green, are painted around perforations on the outer card, and through the apertures the confusion colours can successively be brought into comparison with them.

Test Types.—With the dial are supplied test types for ascertaining the acuteness of vision. The price of the chromatic dial and test types, in cardboard cases complete, is two shillings.

Prepared in Buckinghamshire.

Liquor Carnis
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THE LANCET reports again:

"*This valuable food has on a previous occasion found a place in our records of analytical work. It has since been considerably improved in many essential respects, not the least of which are flavour, keeping properties on exposure to air, and mode of manufacture, in which, it should be added, provision is made to secure the produce against all risk of infection.*"—THE LANCET.

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THE LANCET.

LONDON] SATURDAY. [AUG. 29.

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These contain 800 coated and uncoated forms of different strengths, requiring not less than 3,000 bottles and jars. Many pills are now being made in imitation of ours, principally by not very scrupulous persons we formerly supplied. Inferior drugs and chemicals are used for cheapness, and the pills pass through the system unaltered. Medical men and Chemists in ordering through wholesale houses, are requested to specify

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Or direct from us, we paying postage and carriage.

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In this preparation advantage has been taken of the solubility of Pepsine in Glycerine to produce a convenient and desirable *liquid form* of this valuable medicine; whilst the preservative qualities of the menstruum confer upon the Acid Glycerine of Pepsine the property of keeping for any length of time.

May be prescribed with most substances compatible with Acids.
In 4-oz., 8-oz., and 16-oz. Bottles, and in Bulk.

The published experiments of G. F. DOWDESWELL, Esq., M.A., Cantab., F.C.S., F.L.S., &c., Dr. PAVY, Professor TUSON, the late Professor GARROD, Dr. ARNOLD LEES, and others, conclusively demonstrate the excellence, high digestive power, and medicinal value of the above preparations.

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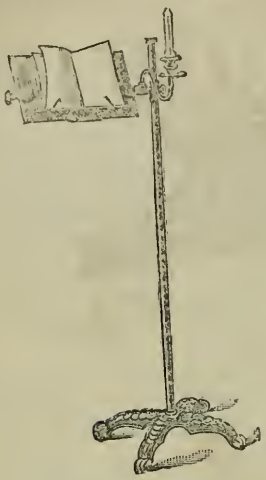

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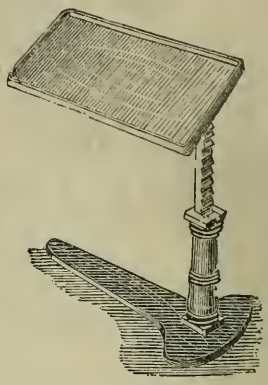

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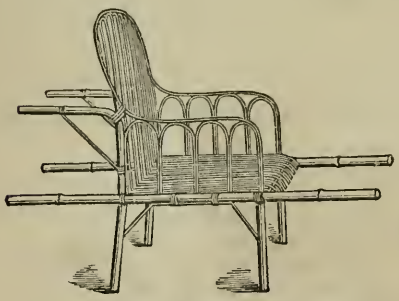

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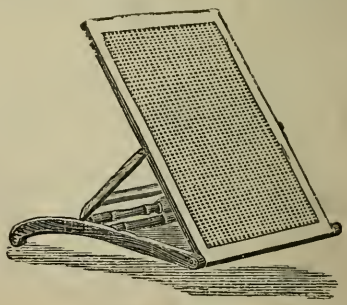

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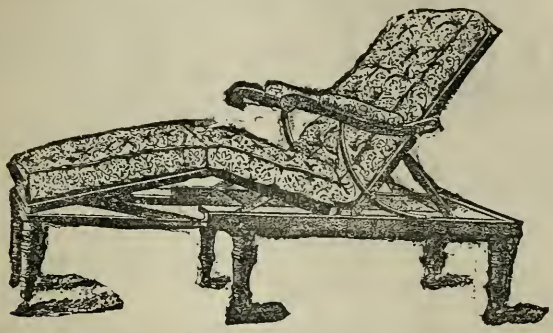

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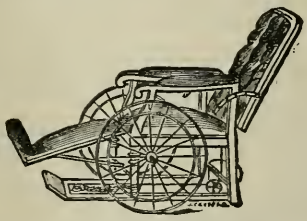

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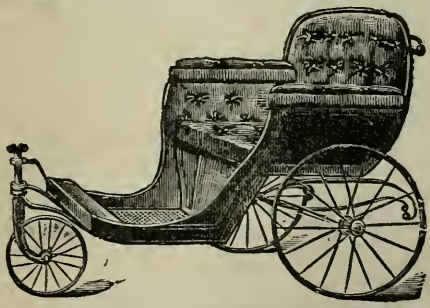

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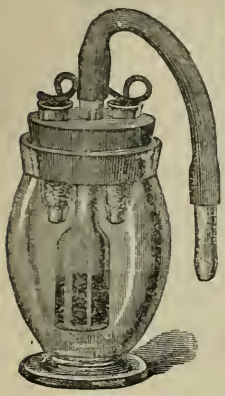

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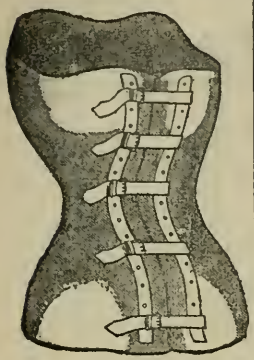


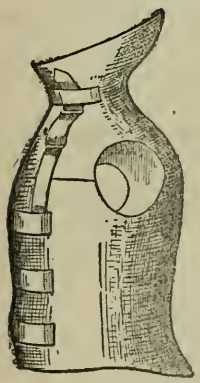
Instructions for Measurement, &c.

JACKET (*in cases of slight deformity*).

Circumference at axilla.
„ waist.
„ hips.
Length from axilla to great trochanter.

In severe angular cases circumference over apex of curve, position of same, and contour should be given; in lateral cases a description of the case.

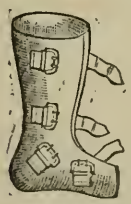
In all cases it should be stated if for male or female.



CERVICAL JACKET.

Same measurements required, and circumference at neck, and length from neck to axilla.

Any part of the Jacket can in the process of Manufacture be left Soft.



CLUB FOOT.

Circumference below knee.
„ ankle.
„ heel and instep.
Length from below knee to ground.
„ of foot.

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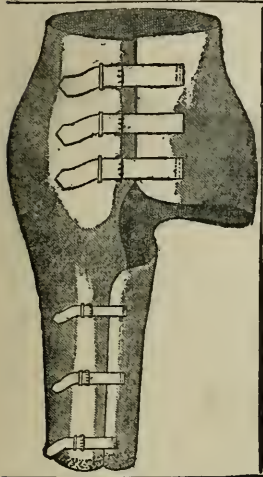

Instructions for Measurement, &c.

HIP SPLINT.

Circumference at waist.
„ hips.
„ thigh, top of
„ above knee.
Length from waist to groin.

State if for right or left side.

LEG SPLINT.

Circumference at top of thigh.
„ above knee.
„ at knee.
„ below knee.
„ calf.
„ ankle.
Length from groin to centre of knee.
„ centre of knee to ankle.

State if for right or left leg.

When the foot-part is required, also circumference of heel and instep, and length from centre of knee to ground.

If the limb is contracted the contour should be given.

Splints are also made in Poroplastic for fracture of Inferior Maxilla, Humerus Elbow-Joint, Forearm, Thigh, Knee-Joint, Leg, Shoulder Joint, Hand, &c.

These Splints can be fitted perfectly to the Patient if softened either by hot water or in a Heater made for the purpose. When mounted with webbing, hot water will do; if with leather, a Heater should be used. The material becomes quite hard again in two or three minutes.

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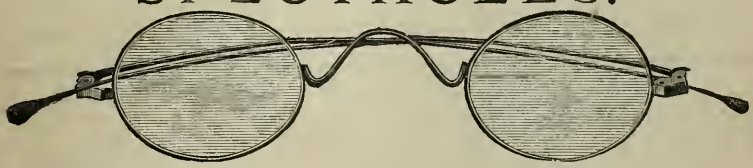

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